(c)(1)(iv)(C) and (D) of this section ARO<INF>et=The value of ARO for the ``edge target'' fuel, as defined in paragraphs (c)(1)(iv)(C) and (D) of this section.

(C) During Phase I, the ``edge target'' fuel shall be identical to the target fuel for all fuel parameters, with the following exceptions: (1) If the E200 level of the target fuel is less than 33 volume percent, then the E200 value for the ``edge target'' fuel shall be set equal to 33 volume percent.

(2) If the aromatics level of the target fuel is less than 18 volume percent, then the ARO value for the ``edge target'' fuel shall be set equal to 18 volume percent.

(3) If the aromatics level of the target fuel is greater than 46 volume percent, then the ARO value for the ``edge target'' fuel shall be set equal to 46 volume percent.

(4) If the E300 level of the target fuel is less than 72 volume percent, then the E300 value for the ``edge target'' fuel shall be set equal to 72 volume percent.

(5) If the E300 level of the target fuel is greater than 95 volume percent, then the E300 value for the ``edge target'' fuel shall be set equal to 95 volume percent.

(6) If [80.32+(0.390 x ARO)] exceeds 94 for the target fuel, then the E300 value for the ``edge target'' fuel shall be set equal to 94 volume percent.

(7) If the E200 level of the target fuel is less than 33 volume percent, then <greek-D>E200 shall be set equal to (E200-33 volume percent).

(8) If the E200 level of the target fuel equals or exceeds 33 volume percent, then <greek-D>E200 shall be set equal to zero. (9) If the aromatics level of the target fuel is less than 18 volume percent, then <greek-D>ARO shall be set equal to (ARO-18 volume percent). If the aromatics level of the target fuel is less than 10 volume percent, then <greek-D>ARO shall be set equal to 8 volume percent.

(10) If the aromatics level of the target fuel is greater than 46 volume percent, then <greek-D>ARO shall be set equal to (ARO-46 volume percent).

(11) If neither of the conditions established in paragraphs (c)(1)(iv)(C)(8) and (9) of this section are met, then <greek-D>ARO shall be set equal to zero.

(12) If the E300 level of the target fuel is less than 72 volume percent, then E300 shall be set equal to (E300-72 volume percent). (13) If the E300 level of the target fuel is less than 94 volume percent and [80.32+(0.390 x ARO)] also is greater than 94, then <greek-D>E300 shall be set equal to (E300-94 volume percent). If the E300 level of the target fuel is greater than 95 volume percent and [80.32+(0.390 x ARO)] also is greater than 94, then <greek-D>E300 shall be set equal to 1 volume percent.

(14) If neither of the conditions established in paragraphs (c)(1)(iv)(C)(11) and (12) of this section are met, then <greek-D>E300 shall be set equal to zero.

(D) During Phase II, the ``edge target'' fuel is identical to the target fuel for all fuel parameters, with the following exceptions: (1) If the E200 level of the target fuel is less than 33 volume percent, then the E200 value for the ``edge target'' fuel shall be set equal to 33 volume percent.

(2) If the aromatics level of the target fuel is less than 18 volume percent, then the ARO value for the ``edge target'' fuel shall be set equal to 18 volume percent.

(3) If the aromatics level of the target fuel is greater than 46 volume percent, then the ARO value for the ``edge target'' fuel shall be set equal to 46 volume percent.

(4) If the E300 level of the target fuel is less than 72 volume percent, then the E300 value for the ``edge target'' fuel shall be set equal to 72 volume percent.

(5) If the E300 level of the target fuel is greater than 95 volume percent, then the E300 value

for the ``edge target'' fuel shall be set equal to 95 volume percent.

(6) If [79.75+(0.385 x ARO)] exceeds 94 for the target fuel, then the E300 value for the ``edge target'' fuel shall be set equal to 94 volume percent.

(7) If the E200 level of the target fuel is less than 33 volume percent, then <greek-D>E200 shall be set equal to (E200-33 volume percent).

(8) If the E200 level of the target fuel equals or exceeds 33 volume percent, then <greek-D>E200 shall be set equal to zero. (9) If the aromatics level of the target fuel is less than 18 volume percent and greater than or equal to 10 volume percent, then <greek-D>ARO shall be set equal to (ARO-18 volume percent). If the aromatics level of the target fuel is less than 10 volume percent, then <greek-D>ARO shall be set equal to 8 volume percent. (10) If the aromatics level of the target fuel is greater than 46 volume percent, then <greek-D>ARO shall be set equal to (ARO-46 volume percent).

(11) If neither of the conditions established in paragraphs (c)(1)(iv)(D)(8) and (9) of this section are met, then <greek-D>ARO shall be set equal to zero.

(12) If the E300 level of the target fuel is less than 72 volume percent, then <greek-D>E300 shall be set equal to (E30'0-72 volume percent).

(13) If the E300 level of the target fuel is less than 94 volume percent and [79.75+(0.385 x ARO)] also is greater than 94, then <greek-D>E300 shall be set equal to (E300-94 volume percent). If the E300 level of the target fuel is greater than 95 volume percent and [79.75+(0.385 x ARO)] also is greater than 94, then <greek-D>E300 shall be set equal to 1 volume percent.

(14) If neither of the conditions established in paragraphs (c)(1)(iv)(D)(11) and (12) of this section are met, then <greek-D>E300 shall be set equal to zero.

(2) The winter exhaust VOC emissions performance of gasolines shall be given by the

equations presented in paragraph (c)(1) of this section with the RVP value set to 8.7 psi for both the baseline and target fuels.

(3) The nonexhaust VOC emissions performance of gasolines in VOC Control Region 1 shall be given by the following equations, where:

VOCNE1=Total nonexhaust emissions of volatile organic compounds in VOC Control Region 1 in grams per mile

VOCDI1=Diurnal emissions of volatile organic compounds in VOC Control Region 1 in grams per mile

VOCHS1=Hot soak emissions of volatile organic compounds in VOC Control Region 1 in grams per mile

VOCRL1=Running loss emissions of volatile organic compounds in VOC Control Region 1 in grams per mile

VOCRF1=Refueling emissions of volatile organic compounds in VOC Control Region 1 in grams per mile

(i) During Phase I:

VOCNE1=VOCDI1+VOCHS1+ VOCRL1+VOCRF1

VOCDI1=[0.00736 x (RVP\2\)]-[0.0790 x RVP]+0.2553 VOCHS1=[0.01557 x (RVP\2\)]-[0.1671 x RVP]+0.5399 VOCRL1=[0.00279 x (RVP\2\)]-[0.1096 x RVP]-0.7340 VOCRF1=[0.006668 x RVP]-0.0180

(ii) During Phase II:

VOCNE1=VOCDI1+VOCHS1+ VOCRL1+VOCRF1

VOCDI1=[0.007385 x (RVP\2\)]-[0.08981 x RVP]+0.3158 VOCHS1=[0.006654 x (RVP\2\)]-[0.08009 x RVP]+0.2846 VOCRL1=[0.017768 x (RVP\2\)]-[0.18746 x

RVP]+0.6146 VOCRF1=[0.0004767 x RVP]+0.011859

(4) The nonexhaust VOC emissions performance of gasolines in VOC Control Region 2 shall be given by the following equations, where:

VOCNE2=Total nonexhaust emissions of volatile organic compounds in VOC Control Region 2 in grams per mile

VOCDI2=Diurnal emissions of volatile organic compounds in VOC Control Region 2 in grams per mile

VOCHS2=Hot soak emissions of volatile organic compounds in VOC Control Region 2 in grams per mile

VOCRL2=Running loss emissions of volatile organic compounds in VOC Control Region 2 in grams per mile

VOCRF2=Refueling emissions of volatile organic compounds in VOC Control Region 2 in grams per mile

(i) During Phase I:

VOCNE2=VOCDI2+VOCHS2 +VOCRL2+VOCRF2

VOCDI2=[0.006818 x (RVP\2\)]-[0.07682 x RVP]+0.2610 VOCHS2=[0.014421 x (RVP\2\)]-[0.16248 x RVP]+0.5520 VOCRL2=[0.016255 x (RVP\2\)]-[0.1306 x RVP]+0.2963 VOCRF2=[0.006668 x RVP]-0.0180

(ii) During Phase II:

VOCNE2=VOCDI2+VOCHS2+ VOCRL2+VOCRF2

VOCDI2=[0.004775 x (RVP\2\)]-[0.05872 x RVP]+0.21306 VOCHS2=[0.006078 x (RVP\2\)]-[0.07474 x RVP]+0.27117 VOCRL2=[0.016169 x (RVP\2\)]<plus-minus>[0.17206 x RVP]+0.56724 VOCRF2=[0.004767 x RVP]+0.011859

(5) Winter VOC emissions shall be given by VOCE, as defined in paragraph (c)(2) of this section, using the appropriate baseline emissions given in paragraph (b)(3) of this section. Total nonexhaust VOC emissions shall be set equal to zero under winter conditions. (6) Total VOC emissions. (i) Total summer VOC emissions shall be given by the following equations:

VOCS1=(VOCE/1000)+VOCNE1

VOCS2=(VOCE/1000)+VOCNE2

VOCS1=Total summer VOC emissions in VOC Control Region 1 in terms of grams per mile

VOCS2=Total summer VOC emissions in VOC Control Region 2 in terms of grams per mile

(ii) Total winter VOC emissions shall be given by the following equations:

VOCW=(VOCE/1000)

VOCW=Total winter VOC emissions in terms of grams per mile

(7) Phase I total VOC emissions performance. (i) The total summer VOC emissions performance of the target fuel in percentage terms from baseline levels shall be given by the following equations during Phase I:

VOCS1%=[100% x (VOCS1-1.306 g/mi)]/(1.306 g/mi) VOCS2%=[100% x (VOCS2-1.215 g/mi)]/(1.215 g/mi) VOC1%=Percentage change in VOC emissions from baseline levels in VOC Control Region 1

VOC2%=Percentage change in VOC emissions from baseline levels in VOC Control Region 2

(ii) The total winter VOC emissions performance of the target fuel in percentage terms from baseline levels shall be given by the following equations during Phase I:

VOCW%=[100% x (VOCW-0.660 g/mi)]/(0.660 g/mi) VOCW%=Percentage change in winter VOC emissions from baseline levels

(8) Phase II total VOC emissions performance. (i) The total summer VOC emissions

performance of the target fuel in percentage terms from baseline levels shall be given by the following equations during Phase II:

VOCS1%=[100% x (VOCS1-1.4663 g/mi)]/(1.4663 g/mi) VOCS2%=[100% x (VOCS2-1.3991 g/mi)]/(1.3991 g/mi)

(ii) The total winter VOC emissions performance of the target fuel in percentage terms from baseline levels shall be given by the following equation during Phase II:

VOCW%=[100% x (VOC-1.341 g/mi)]/(1.341 g/mi)

for

(d) NO<INF>X performance. (1) The summer NO<INF>X emissions performance of gasolines shall be given by the following equations:

NO<INF>X=NO<INF>X(b)+[NO<INF>X(b) x Y(t)/100] Y<INF>NOX(t)=[(w<INF>1 x N<INF>n)+(w<INF>2 x H<INF>n)-1] x 100

where

NO<INF>X=NO<INF>X emissions in milligrams/mile Y<INF>NOx(t)=NO<INF>X performance of target fuel in terms of percentage change from baseline

NO<INF>X(b)=Baseline NO<INF>X emissions as defined in paragraph (b)(2) of this section for the appropriate phase and season N<INF>n=exp n<INF>1(t)/exp n<INF>1(b) H<INF>n=exp n<INF>2(t)/exp n<INF>2(b) w<INF>1=Weighting factor for normal emitters as defined in paragraph (b)(1) of this section for the appropriate Phase w<INF>2=Weighting factor for higher emitters as defined in paragraph (b)(1) of this section for the appropriate Phase

n<INF>1(t)=Normal emitter NO<INF>X equation as defined in paragraph (d)(1)(i) of this section, evaluated using the target fuel's properties subject to paragraphs (d)(1)(iii) and (iv) of this section n<INF>2(t)=Higher emitter NO<INF>X equation as defined in paragraph (d)(1)(ii)

of this section, evaluated using the target fuel's properties subject to paragraphs (d)(1)(iii) and (iv) of this section n<INF>1(b)=Normal emitter NO<INF>X equation as defined in paragraph (d)(1)(i) of this section, evaluated using the base fuel's properties n<INF>2(b)=Higher emitter NO<INF>X equation as defined in paragraph (d)(1)(ii) of this section, evaluated using the base fuel's properties

(i) Consolidated equation for normal emitters.

n<INF>1=(0.0018571 x OXY)+

(0.0006921 x SUL)

+(0.0090744 x RVP)+

(0.0009310 x E200)+

(0.0008460 x E300)+

(0.0083632 x ARO)+

(-0.002774 x OLE)+

(-6.63X10<SUP>-7 x SUL\2\)+

(-0.000119 x ARO\2\)+

(0.0003665 x OLE\2\)

(ii) Equation for higher emitters.

n<INF>2=(-0.00913 x OXY)+

(0.000252 x SUL)+

(-0.01397 x RVP)

+(0.000931 x E200)+

(-0.00401 x E300)+

(0.007097 x ARO)

+(-0.00276 x OLE)

+(0.0003665 x OLE\2\)+

(-7.995x10<SUP>-5 x ARO\2\)

(iii) Flat line extrapolations. (A) During Phase I, fuels with olefin levels less than 3.77 volume percent shall be evaluated with the OLE fuel parameter set equal to 3.77 volume percent when calculating NO<INF>X performance using the equations described in paragraphs (d)(1)(i) and (ii) of this section. Fuels with aromatics levels greater than 36.2 volume percent shall be evaluated with the ARO fuel parameter set equal to 36.2 volume percent when calculating NO<INF>X performance using the equations described in paragraphs (d)(1)(i) and (ii) of this section.

(B) During Phase II, fuels with olefin levels less than 3.77 volume percent shall be evaluated with the OLE fuel parameter set equal to 3.77 volume percent when calculating NO<INF>X performance using the equations described in paragraphs (d)(1)(i) and (ii) of this section. Fuels with aromatics levels greater than 36.8 volume percent shall be evaluated with the ARO fuel parameter set equal to 36.8 volume percent when calculating NO<INF>X performance using the equations described in paragraphs (d)(1)(i) and (ii) of this section. (iv) Linear extrapolations. (A) The equations in paragraphs (d)(1)(i) and (ii) of this section shall be used within the allowable range of SUL, E300, OLE, and ARO for the appropriate Phase, as defined in the following Table 7:

Table 7.--Allowable Ranges of SUL, OLE, and ARO for the NO<INF>X Equations in Paragraphs (d)(1)(i) and (ii) of This Section

Fuel parameter	Phase I		Phase II	
	Low end	High end	Low end	High end
SUL	10.0	450.0	10.0	450.0
E300			70.0	95.0

70.0 95.0 OLE..... 3.77 19.0 3.77 19.0 ARO.....

18.0 36.2 18.0 36.8

(B) For fuels with SUL, E300, OLE and ARO levels outside the ranges defined in Table 7 of paragraph (d)(1)(iv)(A) of this section, Y<INF>NOx(t) shall be defined as:

For Phase I:

Y<INF>NOx(t) = 100% x 0.82 x [exp(n<INF>1(et)) / exp(n<INF>1(b)) - 1. + 100% x 0.18 x [exp(n<INF>2(et) / exp(n<INF>2(b)) - 1] + {[100% x 0.82 x [exp(n<INF>1(et)) / exp(n<INF>1(b))] x [{[(-0.00000133 x SUL<INF>et) + 0.000692] x <greek-D>SUL} + {[(-0.000238 x ARO<INF>et) + 0.0083632] x <greek-D>ARO} + {[(0.000733 x OLE<INF>et) - 0.002774] x <greek-D>OLE}]} + {[100% x 0.18 x [exp(n<INF>2(et)) / exp(n<INF>2(b))] x [{[(-0.0001599 x ARO<INF>et) + 0.007097] x <greek-D>ARO} + {[(0.000732 x OLE<INF>et) - 0.00276] x <greek-D>OLE}]}

For Phase II:

Y<INF>NOx(t) = 100% x 0.738 x [exp(n<INF>1(et)) / exp(n<INF>1(b)) - 1. + 100% x 0.262 x [exp(n<INF>2(et) / exp(n<INF>2(b)) - 1] + {[100% x 0.738 x [exp(n<INF>1(et)) / exp(n<INF>1(b))] x [{[(-0.00000133 x SUL<INF>et) + 0.000692] x <greek-D>SUL} + {[(-0.000238 x ARO<INF>et) + 0.0083632] x <greek-D>ARO} + {[(0.000733 x OLE<INF>et) - 0.002774] x <greek-D>OLE}]} + {[100% x 0.262 x [exp(n<INF>2(et)) / exp(n<INF>2(b))] x [{[(-0.0001599 x ARO<INF>et) + 0.007097] x <greek-D>ARO} + {[(0.000732 x OLE<INF>et) - 0.00276] x <greek-D>OLE}]}

where

n<INF>1, n<INF>2=The equations defined in paragraphs (d)(1) (i) and (ii) of this section.

et=Collection of fuel parameters for the ``edge target'' fuel. These parameters are defined in

paragraphs (d)(1)(iv) (C) and (D) of this section.

n<INF>1(et)=The function n<INF>1 evaluated with ``edge target'' fuel parameters, which are defined in paragraph (d)(1)(iv)(C) of this section.

n<INF>2(et)=The function n<INF>2 evaluated with ``edge target'' fuel parameters, which are defined in paragraph (d)(1)(iv)(C) of this section.

n<INF>1(b)=The function n<INF>1 evaluated with the appropriate baseline fuel parameters defined in paragraph (b)(2) of this section. n<INF>2(b)=The function n<INF>2 evaluated with the appropriate baseline fuel parameters defined in paragraph (b)(2) of this section.

SUL<INF>et=The value of SUL for the ``edge target'' fuel, as defined in paragraph (d)(1)(iv)(C) of this section. ARO<INF>et=The value of ARO for the ``edge target'' fuel, as defined in paragraph (d)(1)(iv)(C) of this section. OLE<INF>et=The value of OLE for the ``edge target'' fuel, as defined in paragraph (d)(1)(iv)(C) of this section.

(C) For both Phase I and Phase II, the ``edge target'' fuel is identical to the target fuel for all fuel parameters, with the following exceptions:

(1) If the sulfur level of the target fuel is less than 10 parts per million, then the value of SUL for the ``edge target'' fuel shall be set equal to 10 parts per million.

(2) If the sulfur level of the target fuel is greater than 450 parts per million, then the value of SUL for the ``edge target'' fuel shall be set equal to 450 parts per million. (3) If the aromatics level of the target fuel is less than 18 volume percent, then the value of ARO for the ``edge target'' fuel shall be set equal to 18 volume percent. (4) If the olefins level of the target fuel is greater than 19 volume percent, then the value of OLE for the ``edge target'' fuel shall be set equal to 19 volume percent. (5) If the E300 level of the target fuel is greater than 95 volume percent, then the value of E300 for the ``edge target'' fuel shall be equal to 95 volume percent.

(6) If the sulfur level of the target fuel is less than 10 parts per million, then <greek-D>SUL shall be set equal to (SUL-10 parts per million).

(7) If the sulfur level of the target fuel is greater than 450 parts per million, then <greek-D>SUL shall be set equal to (SUL-450 parts per million).

(8) If the sulfur level of the target fuel is neither less than 10 parts per million nor greater than 450 parts per million, <greek-D>SUL shall be set equal to zero.

(9) If the aromatics level of the target fuel is less than 18 volume percent and greater than 10 volume percent, then <greek-D>ARO shall be set equal to (ARO-18 volume percent). If the aromatics level of the target fuel is less than 10 volume percent, then <greek-D>ARO shall be set equal to 8 volume percent. (10) If the aromatics level of the target fuel is greater than or equal to 18 volume percent, then <greek-D>ARO shall be set equal to zero.

(11) If the olefins level of the target fuel is greater than 19 volume percent, then <greek-D>OLE shall be set equal to (OLE-19 volume percent).

(12) If the olefins level of the target fuel is less than or equal to 19 volume percent, then <greek-D>OLE shall be set equal to zero. (2) The winter NO<INF>X emissions performance of gasolines shall be given by the equations presented in paragraph (d)(1) of this section with the RVP value set to 8.7 psi.

(3) The NO<INF>X emissions performance of the target fuel in percentage terms from baseline levels shall be given by the following equations:

For Phase I:

Summer NO<INF>X%=[100% x (NO<INF>X-0.660 g/mi)]/(0.660 g/mi) Winter NO<INF>X%=[100% x (NO<INF>X-0.750 g/mi)]/(0.750 g/mi)

For Phase II:

Summer NO<INF>X%=[100% x (NO<INF>X-1.340 g/mi)]/(1.340 g/mi) Winter NO<INF>X%=[100% x (NO<INF>X-1.540 g/mi)]/(1.540 g/mi) Summer NO<INF>X%=Percentage change in NO<INF>X emissions from summer baseline levels Winter NO<INF>X%=Percentage change in NO<INF>X emissions from winter baseline levels

(e) Toxics performance--(1) Summer toxics performance. (i) Summer toxic emissions performance of gasolines in VOC Control Regions 1 and 2 shall be given by the following equations:

TOXICS1=EXHBZ + FORM + ACET + BUTA + POM + NEBZ1 TOXICS2=EXHBZ + FORM + ACET + BUTA + POM + NEBZ2

where

TOXICS1=Summer toxics performance in VOC Control Region 1 in terms of milligrams per mile. TOXICS2=Summer toxics performance in VOC Control Region 2 in terms of milligrams per mile. EXHBZ=Exhaust emissions of benzene in terms of milligrams per mile, as determined in paragraph (e)(4) of this section. FORM=Emissions of formaldehyde in terms of milligrams per mile, as determined in paragraph (e)(5) of this section. ACET=Emissions of acetaldehyde in terms of milligrams per mile, as determined in paragraph (e)(6) of this section. BUTA=Emissions of 1,3-butadiene in terms of milligrams per mile, as determined in paragraph (e)(7) of this section. POM=Polycyclic organic matter emissions in terms of milligrams per mile, as determined in paragraph (e)(8) of this section. NEBZ1=Nonexhaust emissions of benzene in VOC Control Region 1 in milligrams per mile, as determined in paragraph (e)(9) of this section. NEBZ2=Nonexhaust emissions of benzene in VOC Control Region 2 in milligrams per mile, as determined in paragraph (e)(10) of this section.

(ii) The percentage change in summer toxics performance in VOC Control Regions 1 and 2

shall be given by the following equations:

For Phase I:

TOXICS1%=[100% x (TOXICS1-48.61 mg/mi)]/(48.61 mg/mi) TOXICS2%=[100% x (TOXICS2-47.59 mg/mi)]/(47.59 mg/mi)

For Phase II:

TOXICS1%=[100% x (TOXICS1-86.35 mg/mi)]/(86.35 mg/mi) TOXICS2%=[100% x (TOXICS2-85.61 mg/mi)]/(85.61 mg/mi)

where

TOXICS1%=Percentage change in summer toxics emissions in VOC Control Region 1 from baseline levels.

TOXICS2%=Percentage change in summer toxics emissions in VOC Control Region 2 from baseline levels.

(2) Winter toxics performance. (i) Winter toxic emissions performance of gasolines in VOC Control Regions 1 and 2 shall be given by the following equation, evaluated with the RVP set at 8.7 psi:

TOXICW=[EXHBZ + FORM + ACET + BUTA + POM]

where

TOXICW=Winter toxics performance in VOC Control Regions 1 and 2 in terms of milligrams per mile.

EXHBZ=Exhaust emissions of benzene in terms of milligrams per mile, as determined in paragraph (e)(4) of this section. FORM=Emissions of formaldehyde in terms of milligrams per mile, as determined in paragraph (e)(5) of this section. ACET=Emissions of acetaldehyde in terms of milligrams per mile, as determined in paragraph (e)(6) of this section.

BUTA=Emissions of 1,3-butadiene in terms of milligrams per mile, as determined in paragraph (e)(7) of this section. POM=Polycyclic organic matter emissions in terms of milligrams per mile, as determined in paragraph (e)(8) of this section.

(ii) The percentage change in winter toxics performance in VOC Control Regions 1 and 2 shall be given by the following equation:

For Phase I:

TOXICW%=[100% x (TOXICW-58.36 mg/mi)] / (58.36 mg/mi)

For Phase II:

TOXICW%=[100% x (TOXICW-120.55 mg/mi)] / (120.55 mg/mi)

where

TOXICW%=Percentage change in winter toxics emissions in VOC Control Regions 1 and 2 from baseline levels.

(3) Year-round toxics performance. (i) Year-round toxics performance in VOC Control Regions 1 and 2 shall be given by the following equation for reformulated and Clean Air Act baseline gasolines:

TOXICY1=[(0.396 x TOXICS1)+ (0.604 x TOXICW)] TOXICY2=[(0.396 x TOXICS2)+ (0.604 x TOXICW)]

where

TOXICY1=Year-round toxics performance in VOC Control Region 1 in terms of milligrams per mile.

TOXICS1=Summer toxics performance in VOC Control Region 1 in terms of milligrams per mile, as determined in paragraph (e)(1)(i) of this section.

TOXICY2=Year-round toxics performance in VOC Control Region 2 in terms of milligrams per mile.

TOXICS2=Summer toxics performance in VOC Control Region 2 in terms of milligrams per

mile, as determined in paragraph (e)(1)(i) of this section.

TOXICW=Winter toxics performance in VOC Control Regions 1 and 2 in terms of milligrams per mile, as determined in paragraph (e)(2)(i) of this section.

(ii) The percentage change in year-round toxics performance in VOC Control Regions 1 and 2 shall be given by the following equations:

For Phase I:

TOXICY1%=[100% x (TOXICY1-54.50 mg/mi)] / (54.50 mg/mi) TOXICY2%=[100% x (TOXICY2-54.09 mg/mi)] / (54.09 mg/mi)

For Phase II:

TOXICY1%=[100% x (TOXICY1-107.00 mg/mi)] / (107.00 mg/mi) TOXICY2%=[100% x (TOXICY2-106.71 mg/mi)] / (106.71 mg/mi) TOXICY1%=Percentage change in year-round toxics emissions in VOC Control Region 1 from baseline levels. TOXICY2%=Percentage change in year-round toxics emissions in VOC Control Region 2 from baseline levels.

(4) Exhaust benzene emissions shall be given by the following equation, subject to paragragh (e)(4)(iii) of this section:

EXHBZ=BENZ(b) + (BENZ(b) x Y<INF>BEN(t)/100) Y<INF>BEN(t)=[(w<INF>1 x N<INF>b) + (w<INF>2 x H<INF>b) - 1] x 100

where

EXHBZ=Exhaust benzene emissions in milligrams/mile Y<INF>BEN(t)=Benzene performance of target fuel in terms of percentage change from baseline.

BENZ(b)=Baseline benzene emissions as defined in paragraph (b)(2) of this section for the appropriate phase and season. N<INF>b=exp b<INF>1(t)/exp b<INF>1(b) H<INF>b=exp b<INF>2(t)/exp b<INF>2(b) w<INF>1=Weighting factor for normal emitters as defined in

paragraph (b)(1) of this section for the appropriate Phase. w<INF>2=Weighting factor for higher emitters as defined in paragraph (b)(1) of this section for the appropriate Phase. b<INF>1(t)=Normal emitter benzene equation, as defined in paragraph (e)(4)(i) of this section, evaluated using the target fuel's properties subject to paragraph (e)(4)(iii) of this section. b<INF>2(t)=Higher emitter benzene equation as defined in paragraph (e)(4)(ii) of this section, evaluated using the target fuel's properties subject to paragraph (e)(4)(iii) of this section. b<INF>1(b)=Normal emitter benzene equation as defined in paragraph (e)(4)(i) of this section, evaluated for the base fuel's properties. b<INF>2(b)=Higher emitter benzene equation, as defined in paragraph (e)(4)(ii) of this section, evaluated for the base fuel's properties.

(i) Consolidated equation for normal emitters. b<INF>1=(0.0006197 x SUL)+(-0.003376 x E200)+(0.0265500 x ARO)+(0.222390 0 x BEN)

(ii) Equation for higher emitters. b<INF>2=(-0.096047 x OXY)+(0.0003370 x SUL)+(0.0112510 x E300)+(0.011882 0 x ARO)+(0.2223180 x BEN)

(iii) If the aromatics value of the target fuel is less than 10 volume percent, then an aromatics value of 10 volume percent shall be used when evaluating the equations given in paragraphs (e)(4) (i) and (ii) of this section. If the E300 value of the target fuel is greater than 95 volume percent, then E300 value of 95 volume percent shall be used when evaluating the equations given in paragraphs (e)(4) (i) and (ii) of this section.

(5) Formaldehyde mass emissions shall be given by the following equation, subject to paragraphs (e)(5) (iii) and (iv) of this section:

FORM=FORM(b)+(FORM(b) x Y<INF>FORM(t)/100) Y<INF>FORM(t)=[(w<INF>1 x N<INF>f)+(w<INF>2 x H<INF>f)-1] x 100

where

FORM=Exhaust formaldehyde emissions in terms of milligrams/mile.

Y<INF>FORM(t)=Formaldehyde performance of target fuel in terms of percentage change from baseline.

FORM(b)=Baseline formaldehyde emissions as defined in paragraph (b)(2) of this section for the appropriate Phase and season. N<INF>f=exp f<INF>1(t)/exp f<INF>1(b) H<INF>f=exp f<INF>2(t)/exp f<INF>2(b) w<INF>1=Weighting factor for normal emitters as defined in paragraph (b)(1) of this section for the appropriate Phase. w<INF>2=Weighting factor for higher emitters as defined in paragraph (b)(1) of this section for the appropriate Phase. f<INF>1(t)=Normal emitter formaldehyde equation as defined in paragraph (e)(5)(i) of this section, evaluated using the target fuel's properties subject to paragraphs (e)(5) (iii) and (iv) of this section. f<INF>2(t)=Higher emitter formaldehyde equation as defined in paragraph (e)(5)(ii) of this section, evaluated using the target fuel's properties subject to paragraphs (e)(5) (iii) and (iv) of this section. f<INF>1(b)=Normal emitter formaldehyde equation as defined in paragraph (e)(5)(i) of this section, evaluated for the base fuel's properties. f<INF>2(b)=Higher emitter formaldehyde equation as defined in paragraph (e)(5)(ii) of this section, evaluated for the base fuel's properties.

(i) Consolidated equation for normal emitters.

f<INF>1=(-0.010226 x E300)+(-0.007166 x ARO)+(0.0462131 x MTB)

(ii) Equation for higher emitters.

f<INF>2=(-0.010226 x E300)+(-0.007166 x ARO)+(-0.031352 x OLE)+(0.046213 1 x MTB)

(iii) If the aromatics value of the target fuel is less than 10 volume percent, then an aromatics value of 10 volume percent shall be used when evaluating the equations given in paragraphs (e)(5) (i) and (ii) of this section. If the E300 value of the target fuel is greater than 95 volume

percent, then an E300 value of 95 volume percent shall be used when evaluating the equations given in paragraphs (e)(5) (i) and (ii) of this section.

(iv) When calculating formaldehyde emissions and emissions performance, oxygen in the form of alcohols which are more complex or have higher molecular weights than ethanol shall be evaluated as if it were in the form of ethanol. Oxygen in the form of methyl ethers other than TAME and MTBE shall be evaluated as if it were in the form of MTBE. Oxygen in the form of ethyl ethers other than ETBE shall be evaluated as if it were in the form of ETBE. Oxygen in the form of nonmethyl, non-ethyl ethers shall be evaluated as if it were in the form of ETBE.

(6) Acetaldehyde mass emissions shall be given by the following equation, subject to paragraphs (e)(6) (iii) and (iv) of this section:

ACET=ACET(b)+(ACET(b) x Y<INF>ACET(t)/100) Y<INF>ACET(t)=[(w<INF>1 x N<INF>a)+(w<INF>2 x H<INF>a)-1] x 100

where

ACET=Exhaust acetaldehyde emissions in terms of milligrams/mile

Y<INF>ACET(t)=Acetaldehyde performance of target fuel in terms of percentage change from baseline

ACET(b)=Baseline acetaldehyde emissions as defined in paragraph (b)(2) of this section for the appropriate phase and season N<INF>a=exp a<INF>1(t)/exp a<INF>1(b) H<INF>a=exp a<INF>2(t)/exp a<INF>2(b) w<INF>1=Weighting factor for normal emitters as defined in paragraph (b)(1) of this section for the appropriate phase w<INF>2=Weighting factor for higher emitters as defined in paragraph (b)(1) of this section for the appropriate phase

a<INF>1(t)=Normal emitter acetaldehyde equation as defined in paragraph (e)(6)(i) of this section, evaluated using the target fuel's properties, subject to paragraphs (e)(6) (iii) and (iv) of this section a<INF>2(t)=Higher emitter acetaldehyde equation as defined in paragraph (e)(6)(ii)

of this section, evaluated using the target fuel's properties, subject to paragraphs (e)(6) (iii) and (iv) of this section a<INF>1(b)=Normal emitter acetaldehyde equation as defined in paragraph (e)(6)(i) of this section, evaluated for the base fuel's properties f<INF>2(b)=Higher emitter acetaldehyde equation as defined in paragraph (e)(6)(ii) of this section, evaluated for the base fuel's properties

(i) Consolidated equation for normal emitters.

a<INF>1=(0.0002631 x SUL)+

(0.0397860 x RVP)+(-0.012172 x E300)+(-0.005525 x ARO)+(-0.009594 x MTB) +(0.3165800 x ETB)+(0.2492500 x ETH)

(ii) Equation for higher emitters.

a<INF>2=(0.0002627 x SUL)+

(-0.012157 x E300)+(-0.005548 x ARO)+(-0.055980 x MTB)+(0.3164665 x ETB) +(0.2493259 x ETH)

(iii) If the aromatics value of the target fuel is less than 10 volume percent, then an aromatics value of 10 volume percent shall be used when evaluating the equations given in paragraphs (e)(6) (i) and (ii) of this section. If the E300 value of the target fuel is greater than 95 volume percent, then an E300 value of 95 volume percent shall be used when evaluating the equations given in paragraphs (e)(6) (i) and (ii) of this section.

(iv) When calculating acetaldehyde emissions and emissions performance, oxygen in the form of alcohols which are more complex or have higher molecular weights than ethanol shall be evaluated as if it were in the form of ethanol. Oxygen in the form of methyl ethers other than TAME and MTBE shall be evaluated as if it were in the form of MTBE. Oxygen in the form of ethyl ethers other than ETBE shall be evaluated as if it were in the form of ETBE. Oxygen in the

form of nonmethyl, non-ethyl ethers shall be evaluated as if it were in the form of ETBE.

(7) 1,3-butadiene mass emissions shall be given by the following equations, subject to paragraph (e)(7)(iii) of this section:

BUTA=BUTA(b)+(BUTA(b) x Y<INF>BUTA(t)/100) Y<INF>BUTA(t)=[(w<INF>1 x N<INF>d)+(w<INF>2 x H<INF>d)-1] x 100

where

BUTA=Exhaust 1,3-butadiene emissions in terms of milligrams/mile

Y<INF>BUTA(t)=1,3-butadiene performance of target fuel in terms of percentage change from baseline

BUTA(b)=Baseline 1,3-butadiene emissions as defined in paragraph (b)(2) of this section for the appropriate phase and season N<INF>d=exp d<INF>1(t)/exp d<INF>1(b) H<INF>d=exp d<INF>2(t)/exp d<INF>2(b) w<INF>1=Weighting factor for normal emitters as defined in paragraph (b)(1) of this section for the appropriate phase w<INF>2=Weighting factor for higher emitters as defined in paragraph (b)(1) of this section for the appropriate Phase.

d<INF>1(t)=Normal emitter 1,3-butadiene equation as defined in paragraph (e)(7)(i) of this section, evaluated using the target fuel's properties, subject to paragraph (e)(7)(iii) of this section. d<INF>2(t)=Higher emitter 1,3-butadiene equation as defined in paragraph (e)(7)(ii) of this section, evaluated using the target fuel's properties, subject to paragraph (e)(7)(iii) of this section. d<INF>1(b)=Normal emitter 1,3-butadiene equation as defined in paragraph (e)(7)(i) of this section, evaluated for the base fuel's properties.

d<INF>2(b)=Higher emitter 1,3-butadiene equation as defined in paragraph (e)(7)(ii) of this section, evaluated for the base fuel's properties.

(i) Consolidated equation for normal emitters.

d<INF>1=(0.0001552 x SUL)+

(-0.007253 x E200)+(-0.014866 x E300)+(-0.004005 x ARO)+(0.0282350 x OLE)

(ii) Equation for higher emitters.

d<INF>2=(-0.060771 x OXY)+

(-0.007311 x E200)+(-0.008058 x E300)+(-0.004005 x ARO)+(0.0436960 x OLE)

(iii) If the aromatics value of the target fuel is less than 10 volume percent, then an aromatics value of 10 volume percent shall be used when evaluating the equations given in paragraphs (e)(7) (i) and (ii) of this section. If the E300 value of the target fuel is greater than 95 volume percent, then an E300 value of 95 volume percent shall be used when evaluating the equations given in paragraphs (e)(7) (i) and (ii) of this section.

(8) Polycyclic organic matter mass emissions shall be given by the following equation:

POM=0.003355 x VOCE

POM=Polycyclic organic matter emissions in terms of milligrams per mile

VOCE=Non-methane, non-ethane exhaust emissions of volatile organic compounds in grams per mile.

(9) Nonexhaust benzene emissions in VOC Control Region 1 shall be given by the following equations for both Phase I and Phase II:

NEBZ1=DIBZ1+HSBZ1+RLBZ1+RFBZ1

HSBZ1=10 x BEN x HSVOC1 x [(-0.0342 x MTB)+(-0.080274 x RVP)+1.4448]

DIBZ1=10 x BEN x DIVOC1 x [(-0.0290 x MTB)+(-0.080274 x RVP)+1.3758]

RLBZ1=10 x BEN x RLVOC1 x [(-0.0342 x MTB)+(-0.080274 x RVP)+1.4448]

RFBZ1=10 x BEN x RFVOC1 x [(-0.0296 x MTB)+(-0.081507 x RVP)+1.3972]

where

NEBZ1=Nonexhaust emissions of volatile organic compounds in VOC Control Region 1 in

milligrams per mile.

DIBZ1=Diurnal emissions of volatile organic compounds in VOC Control Region 1 in milligrams per mile.

HSBZ1=Hot soak emissions of volatile organic compounds in VOC Control Region 1 in milligrams per mile.

RLBZ1=Running loss emissions of volatile organic compounds in VOC Control Region 1 in milligrams per mile. RFBZ1=Refueling emissions of volatile organic compounds in VOC Control Region 1 in grams per mile.

VOCDI1=Diurnal emissions of volatile organic compounds in VOC Control Region 1 in milligrams per mile, as determined in paragraph (c)(3) of this section.

VOCHS1=Hot soak emissions of volatile organic compounds in VOC Control Region 1 in milligrams per mile, as determined in paragraph (c)(3) of this section.

VOCRL1=Running loss emissions of volatile organic compounds in VOC Control Region 1 in milligrams per mile, as determined in paragraph (c)(3) of this section.

VOCRF1=Refueling emissions of volatile organic compounds in VOC Control Region 1 in milligrams per mile, as determined in paragraph (c)(3) of this section.

(10) Nonexhaust benzene emissions in VOC Control Region 2 shall be given by the following equations for both Phase I and Phase II:

NEBZ2=DIBZ2+HSBZ2+RLBZ2+RFBZ2

HSBZ2=10 x BEN x HSVOC2 x [(-0.0342 x MTB)+(-0.080274 x RVP)+1.4448]

DIBZ2=10 x BEN x DIVOC2 x [(-0.0290 x MTB)+(-0.080274 x RVP)+1.3758]

RLBZ2=10 x BEN x RLVOC2 x [(-0.0342 x MTB)+(-0.080274 x RVP)+1.4448]

RFBZ2=10 x BEN x RFVOC2 x [(-0.0296 x MTB)+(-0.081507 x RVP)+1.3972]

where

NEBZ2=Nonexhaust emissions of volatile organic compounds in VOC Control Region 2 in milligrams per mile.

DIBZ2=Diurnal emissions of volatile organic compounds in VOC Control Region 2 in milligrams per mile.

HSBZ2=Hot soak emissions of volatile organic compounds in VOC Control Region 2 in milligrams per mile.

RLBZ2=Running loss emissions of volatile organic compounds in VOC Control Region 2 in milligrams per mile. RFBZ2=Refueling emissions of volatile organic compounds in VOC Control Region 2 in grams per mile.

VOCDI2=Diurnal emissions of volatile organic compounds in VOC Control Region 2 in milligrams per mile, as determined in paragraph (c)(4) of this section.

VOCHS2=Hot soak emissions of volatile organic compounds in VOC Control Region 2 in milligrams per mile, as determined in paragraph (c)(4) of this section.

VOCRL2=Running loss emissions of volatile organic compounds in VOC Control Region 2 in milligrams per mile, as determined in paragraph (c)(4) of this section.

VOCRF2=Refueling emissions of volatile organic compounds in VOC Control Region 2 in milligrams per mile, as determined in paragraph (c)(4) of this section.

(f) Limits of the model. (1) The equations described in paragraphs (a), (c), and (d) of this section shall be valid only for fuels with fuel properties that fall in the following ranges for reformulated gasolines and conventional gasolines:

(i) For reformulated gasolines:

Fuel property	Acceptable range
Oxygen	0.00-3.70 weight percent

Sulfur..... 0.0-500.0 parts per million by weight.

RVP..... 6.4-10.0 pounds per square inch.

E200..... 30.0-70.0 volume percent.

E300..... 70.0-100.0 volume percent.

Aromatics..... 0.0-50.0 volume percent.

Olefins..... 0.00-25.0 volume percent.

Benzene..... 0.0-2.0 volume percent.

(ii) For conventional gasolines:

Fuel property	Acceptable range
Oxygen	0.00-3.70 weight percent

Sulfur..... 0.0-1000.0 parts per million by weight.

RVP..... 6.4-11.0 pounds per square inch.

E200..... 30.0-70.0 volume percent.

E300..... 70.0-100.0 volume percent.

Aromatics..... 00.0-55.0 volume percent.

Olefins..... 0.00-30.0 volume percent.

Benzene..... 0.0-4.9 volume percent.

(2) Fuels with one or more properties that do not fall within the ranges described in above shall not be certified or evaluated for their emissions performance using the complex emissions model described in paragraphs (c), (d), and (e) of this section.

Sec. 80.46 Measurement of reformulated gasoline fuel parameters.

(a) Sulfur. Sulfur content shall be determined using American Society for Testing and Materials (ASTM) standard method D-2622-92, entitled ``Standard Test Method for Sulfur in Petroleum Products by XRay Spectrometry."

(b) Olefins. Olefin content shall be determined using ASTM standard method D-1319-93, entitled ``Standard Test Method for Hydrocarbon Types in Liquid Petroleum Products by

Fluorescent Indicator Adsorption." (c) Reid vapor pressure (RVP). Reid Vapor Pressure (RVP) shall be determined using the procedure described in 40 CFR part 80, appendix E, Method 3.

(d) Distillation. (1) Distillation parameters shall be determined using ASTM standard method D-86-90, entitled ``Standard Test Method for Distillation of Petroleum Products"; except that (2) The figures for repeatability and reproducibility given in degrees Fahrenheit in Table 9 in the ASTM method are incorrect, and shall not be used.

(e) Benzene. (1) Benzene content shall be determined using ASTM standard method D-3606-92, entitled ``Standard Test Method for Determination of Benzene and Toluene in Finished Motor and Aviation Gasoline by Gas Chromatography"; except that (2) Instrument parameters must be adjusted to ensure complete resolution of the benzene, ethanol and methanol peaks because ethanol and methanol may cause interference with ASTM standard method D-3606-92 when present.

(f) Aromatics. Aromatics content shall be determined by gas chromatography identifying and quantifying each aromatic compound as set forth in paragraph (f)(1) of this section. (1) (i) Detector. The detector is an atomic mass spectrometer detector (MSD). The detector may be set for either selective ion or scan mode.

(ii) Method A. (A) The initial study of this method used a three component internal standard using the following calculations. (B) The calibration points are constructed by calculating an amount ratio and response ratio for each level of a particular peak in the instrument's calibration table.

(C) The amount ratio is the amount of the compound divided by the amount of the internal standard for a given level. (D) The response ratio is the response of the compound divided by the response of the internal standard at this level. (E) The equation for the curve through the

calibration points is calculated using the type fit and origin handling specified in the instrument's calibration table. In the initial study the fit was a second degree polynomial including a forced zero for the origin. (F) The response of the compound in a sample is divided by the response of the internal standard to provide a response ratio for that compound in the sample.

(G) A corrected amount ratio for the unknown is calculated using the curve fit equation determined in paragragh (f)(1)(ii)(E) of this section.

(H) The amount of the aromatic compound is equal to the corrected amount ratio times the Amount of Internal Standard. (I) The total aromatics in the sample is the sum of the amounts of the individual aromatic compounds in the sample. (J) An internal standard solution can be made with the following compounds at the listed concentrations in volume percent. Also listed is the Chemical Abstracts Service Registry Number (CAS), atomic mass unit (amu) on which the detector must be set at the corresponding retention time if used in the selective ion mode, retention times in minutes, and boiling point in deg.C. (Other, similar, boiling point materials can be used which are not found in gasoline.) Retention times are approximate and apply only to a 60 meter capillary column used in the initial study. Other columns and retention times can be used. (1) 4-methyl-2-pentanone, 50 vol% [108-10-1], 43.0 amu, 22.8 min., bp 118;

(2) benzyl alcohol, 25 vol%, [100-51-6], 108 amu, 61.7 min., bp 205;

(3) 1-octanol, [111-87-5], 25 vol%, 56.0 amu, 76.6 min., bp 196; (K) At least two calibration mixtures which bracket the measured total aromatics concentration must be made with a representative mixture of aromatic compounds. The materials and concentrations used in the highest concentration calibration level in the initial study for this method are listed in this paragraph (f)(1)(ii)(K). Also listed is the Chemical Abstracts Service Registry Number (CAS), atomic mass unit (amu) on which the detector must be set for the corresponding retention time if

used in the selective ion mode, retention times in minutes, and in some cases boiling point in deg.C. The standards are made in 2,2,4- trimethylpentane (iso-octane), [540-84-1]. Other aromatic compounds, and retention times may be acceptable as long as the aromatic values produced meet the criteria found in the quality assurance section for the aromatic methods.

Compound	Concentrations vol %	CAS No.	AMU	Retention time, min.	Boiling point, deg.C
Benzene	2.25	71-43-2	78	18.9	80.1
Methylbenzene	2.5	108-88-3	91	25.5	111
Ethylbenzene	2.25	100-41-4	91	34.1	136.2
1,3-Dimethylbenzene 1,4-Dimethylbenzene	5	108-38-3	91	35.1	
136-138 1,2-dimethylbenzene	10	95-47-6	91	38.1	144
(1-methylethyl)-benzene	2.25	620-14-4	105	42.8	
Propylbenzene	2.25	103-65-1	91	48.0	159.2
1-ethyl-2-methylbenzene	2.25	611-14-3	105	49.3	165
1,2,4-trimethylbenzene	2.25	95-63-6	105	50.9	169
1-ethyl-2-methylbenzene	2.25	611-14-4	105	53.3	165
1,3-diethylbenzene	2.25	141-93-5	119	56.6	181
Butylbenzene	2.25	104-51-8	91	60.7	183
1-methyl-2-(1-methylethyl)-benzene	2.25	933-98-2	119	63.9	
1-ethyl-3-methylbenzene	2.25	620-14-4	105	64.2	
1-methyl-4-iso-propylbenzene	2.25	99-87-6	119	69.0	177

2-ethyl-1,3-dimethylbenzene..... 2.25 2870-04-4 119 73.0 .....

2-methylpropylbenzene..... 2.25 538-93-2 91 75.0 .....

1-methyl-3-(1-methylethyl)-benzene..... 2.25 535-77-3 119 75.6 .....

1-methyl-3-propylbenzene..... 2.25 1074-43-7 105 78.9 .....

2-ethyl-1,4-dimethylbenzene..... 2.25 1758-88-9 119 83.2 187

1-methyl-4-(methylethyl)-benzene..... 2.25 934-80-9 119 83.4 .....

1-ethyl-2,4-dimethylbenzene..... 2.25 874-41-9 119 85.7 .....

(1,1-dimethylethy)-3-methylbenzene..... 2.25 27138-21-2 133 87.3 .....

1-ethyl-2,3-dimethylbenzene..... 2.25 933-98-2 119 88.7 .....

1-(1,1-dimethylethyl)-3-methylbenzene..... 2.25 175-38-3 133 89.4 .....

1-ethyl-1,4-dimethylbenzene..... 2.25 874-41-9 119 94.9 .....

2-ethyl-1,3-dimethylbenzene..... 2.25 2870-04-4 119 100.9 .....

1-ethyl-3,5-dimethylbenzene..... 2.25 934-74-7 119 102.5 .....

1-2,4,5-tetramethylbenzene..... 2.25 95-93-2 119 115.9 197

Pentylbenzene..... 2.25 538-68-1 91 116 .....

Naphthalene..... 2.25 191-20-3 128 118.4 198

3,5 dimethyl-iso-butylbenzene..... 2.25 98-19-1 147 118.5 205.5

(iii) Method B. (A) Use a percent normalized format to determine the concentration of the individual compounds. No internal standard is used in this method.

(B) The calculation of the aromatic compounds is done by developing calibration curves for each compound using the type fit and origin handling specified in the instrument's calibration table. (C) The amount of compound in a sample (the corrected amount) is calculated using the

equation determined in paragraph (f)(1)(ii) of this section for that compound.

(D) The percent normalized amount of a compound is calculated using the following equation:

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where:

A<INF>n = percent normalized amount of a compound A<INF>c = corrected amount of the compound A<INF>s = sum of all the corrected amounts for all identified compounds in the sample

(E) The total aromatics is the sum of all the percent normalized aromatic amounts in the sample.

(F) This method allows quantification of non-aromatic compounds in the sample. However, correct quantification can only be achieved if the instrument's calibration table can identify the compounds that are responsible for at least 95 volume percent of the sample and meets the following quality control criteria.

(2) Quality assurance. (i) The performance standards will be from repeated measurement of the calibration mixture, standard reference material, or process control gasoline. The uncertainty in the measured aromatics percentages in the standards must be less than 2.0 volume percent in the fuel at a 95% confidence level. (ii) If the bias of the standard mean is greater than 2% of the theoretical value, then the standard measurement and measurements of all samples measured subsequent to the previous standard measurement that met the performance criteria must be repeated after re-calibrating the instrument.

(iii) Replicate samples must be within 3.0 volume percent of the previous sample or within 2.0 volume percent of the mean at the 95% confidence level.

(3) Alternative test method. (i) Prior to January 1, 1997, any refiner or importer may

determine aromatics content using ASTM standard method D-1319-93, entitled ``Standard Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption," for purposes of meeting any testing requirement involving aromatics content; provided that

(ii) The refiner or importer test result is correlated with the method specified in paragraph (f)(1) of this section. (g) Oxygen and oxygenate content analysis. Oxygen and oxygenate content shall be determined by the gas chromatographic procedure using an oxygenate flame ionization detector (GC-OFID) as set out in paragraphs (g) (1) through (8) of this section. (1) Introduction; scope of application. (i) The following singlecolumn, direct-injection gas chromatographic procedure is a technique for quantifying the oxygenate content of gasoline. (ii) This method covers the quantitative determination of the oxygenate content of gasoline through the use of an oxygenate flame ionization detector (OFID). It is applicable to individual organic oxygenated compounds (up to 20 mass percent each) in gasoline having a final boiling point not greater than 220 deg.C. Samples above this level should be diluted to fall within the specified range. (iii) The total concentration of oxygen in the gasoline, due to oxygenated components, may also be determined with this method by summation of all peak areas except for dissolved oxygen, water, and the internal standard. Sensitivities to each component oxygenate must be incorporated in the calculation.

(iv) All oxygenated gasoline components (alcohols, ethers, etc.) may be assessed by this method.

(v) The total mass percent of oxygen in the gasoline due to oxygenated components also may be determined with this method by summing all peak areas except for dissolved oxygen, water, and the internal standard.

(vi) Where trade names or specific products are noted in the method, equivalent apparatus and

chemical reagents may be used. Mention of trade names or specific products is for the assistance of the user and does not constitute endorsement by the U.S. Environmental Protection Agency.

(2) Summary of method. A sample of gasoline is spiked to introduce an internal standard, mixed, and injected into a gas chromatograph (GC) equipped with an OFID. After chromatographic resolution the sample components enter a cracker reactor in which they are stoichiometrically converted to carbon monoxide (in the case of oxygenates), elemental carbon, and hydrogen. The carbon monoxide then enters a methanizer reactor for conversion to water and methane. Finally, the methane generated is determined by a flame ionization detector (FID).

(3) Sample handling and preservation. (i) Samples shall be collected and stored in containers which will protect them from changes in the oxygenated component contents of the gasoline, such as loss of volatile fractions of the gasoline by evaporation. (ii) If samples have been refrigerated they shall be brought to room temperature prior to analysis.

(iii) Gasoline is extremely flammable and should be handled cautiously and with adequate ventilation. The vapors are harmful if inhaled and prolonged breathing of vapors should be avoided. Skin contact should be minimized.

(4) Apparatus. (i) A GC equipped with an oxygenate flame ionization detector.

(ii) An autosampler for the GC is highly recommended. (iii) A 60-m length, 0.25-mm ID, 1.0-<greek-m>m film thickness, nonpolar capillary GC column (J&W DB-1 or equivalent) is recommended. (iv) An integrator or other acceptable system to collect and process the GC signal.

(v) A positive displacement pipet (200 <greek-m>L) for adding the internal standard.

(5) Reagents and materials. Gasoline and many of the oxygenate additives are extremely flammable and may be toxic over prolonged exposure. Methanol is particularly hazardous. Persons performing this procedure must be familiar with the chemicals involved and all

precautions applicable to each.

(i) Reagent grade oxygenates for internal standards and for preparation of standard solutions.

(ii) Supply of oxygenate-free gasoline for blank assessments and for preparation of standard solutions. (iii) Calibration standard solutions containing known quantities of suspected oxygenates in gasoline.

(iv) Calibration check standard solutions prepared in the same manner as the calibration standards.

(v) Reference standard solutions containing known quantities of suspected oxygenates in gasoline.

(vi) Glass standard and test sample containers (between 5 and 100 Ml capacity) fitted with a self-sealing polytetrafluoroethlene (PTFE) faced rubber septum crimp-on or screw-down sealing cap for preparation of standards and samples.

(6) Calibration.--(i)(A) Calibration standards of reagent-grade or better oxygenates (such as methanol, absolute ethanol, methyl t-butyl ether (MTBE), di-i-propyl ether (DIPE), ethyl t-butyl ether (ETBE), and t-amyl methyl ether (TAME)) are to be prepared gravimetrically by blending with gasoline that has been previously determined by GC/OFID to be free of oxygenates. Newly acquired stocks of reagent grade oxygenates shall be analyzed for contamination by GC/FID and GC/OFID before use.

(B) Required calibration standards (percent by volume in gasoline):

Oxygenate	Range (percent)	Number of standards (minimum)	Oxygenate	Range (percent)	Number of standards (minimum)
Methanol	0.25-12.00	5	Ethanol	0.25-12.00	5
t-Butanol	0.25-12.00	5	MTBE	0.25-15.00	5

(ii) Take a glass sample container and its PTFE faced rubber septum sealing cap. Transfer a quantity of an oxygenate to the sample container and record the mass of the oxygenate to the nearest 0.1 mg. Repeat this process for any additional oxygenates of interest except the internal standard. Add oxygenate-free gasoline to dilute the oxygenates to the desired concentration. Record the mass of gasoline added to the nearest 0.1 mg, and determine and label the standard according to the mass percent quantities of each oxygenate added. These standards are not to exceed 20 mass percent for any individual pure component due to potential hydrocarbon breakthrough and/or loss of calibration linearity.

(iii) Inject a quantity of an internal standard (such as 2-butanol) and weigh the contents again. Record the difference in masses as the mass of internal standard to the nearest 0.1 mg. The mass of the internal standard shall amount to between 2 and 6 percent of the mass of the test sample (standard). The addition of an internal standard reduces errors caused by variations in injection volumes. (iv) Ensure that the prepared standard is thoroughly mixed and transfer approximately 2 Ml of the solution to a vial compatible with the autosampler if such equipment is used. (v) At least five concentrations of each of the expected oxygenates should be prepared. The standards should be as equally spaced as possible within the range and may contain more than one oxygenate. A blank for zero concentration assessments is also to be included. Additional standards should be prepared for other oxygenates of concern.

(vi) Based on the recommended chromatographic operating conditions specified in paragraph (g)(7)(i) of this section, determine the retention time of each oxygenate component by analyzing dilute aliquots either separately or in known mixtures. Reference should be made to the Chemical Abstracts Service (CAS) registry number of each of the analytes for proper identification. Approximate retention times for selected oxygenates under these conditions are as

follows:

Oxygenate	CAS	Retention time (minutes)
Dissolved oxygen	7782-44-7	5.50
Water	7732-18-5	7.20
Methanol	67-56-1	9.10
Ethanol	64-17-5	12.60
Propanone	67-64-1	15.00
2-Propanol	67-63-0	15.70
t-Butanol	75-65-0	18.00
n-Propanol	71-23-8	21.10
MTBE	1634-04-4	23.80
2-Butanol	15892-23-6	26.30
i-Butanol	78-83-1	30.30
ETBE	637-92-3	31.10
n-Butanol	71-36-3	33.50
TAME	994-05-8	35.30
i-Pentanol	137-32-6	38.10

(vii) By GC/OFID analysis, determine the peak area of each oxygenate and of the internal standard. (viii) Obtain a calibration curve by performing a least-squares fit of the relative area response factors of the oxygenate standards to their relative mass response factors as follows:

R<INF>ao=b<INF>oR<INF>mo+b<INF>1(R<INF>mo)<SUP>2

where:

R<INF>ao = relative area response factor of the oxygenate, A<INF>o/ A<INF>i

R<INF>mo = relative mass response factor of the oxygenate, M<greek-o>/ M<INF>i

A<INF>o = area of the oxygenate peak A<INF>i = area of the internal standard peak

M<INF>o = mass of the oxygenate added to the calibration standard M<INF>i = mass of

internal standard added to the calibration standard b<INF>0 = linear regression coefficient b<INF>1 = quadratic regression coefficient

(7) Procedure. (i) GC operating conditions: (A) Oxygenate-free helium carrier gas: 1.1 Ml/min (2 bar), 22.7 cm/ sec at 115 deg.C;

(B) Carrier gas split ratio: 1:100; (C) Zero air FID fuel: 370 Ml/min (2 bar); (D) Oxygenate free hydrogen FID fuel: 15 Ml/min (2 bar); (E) Injector temperature: 250 deg.C; (F) Injection volume: 0.5 <greek-m>L; (G) Cracker reactor temperature: sufficiently high enough temperature to ensure reduction of all hydrocarbons to the elemental states (i.e., C<INF>xH<INF>2x -> C + H<INF>2, etc.); (H) FID temperature: 400 deg.C; and (I) Oven temperature program: 40 deg.C for 6 min, followed by a temperature increase of 5 deg.C/min to 50 deg.C, hold at 50 deg.C for 5 min, followed by a temperature increase of 25 deg.C/min to 175 deg.C, and hold at 175 deg.C for 2 min. (ii) Prior to analysis of any samples, inject a sample of oxygenate-free gasoline into the GC to test for hydrocarbon breakthrough overloading the cracker reactor. If breakthrough occurs, the OFID is not operating effectively and must be corrected before samples can be analyzed.

(iii) Prepare gasoline test samples for analysis as follows: (A) Tare a glass sample container and its PTFE faced rubber septum sealing cap. Transfer a quantity of the gasoline sample to the sample container and record the mass of the transferred sample to the nearest 0.1 mg.

(B) Inject a quantity of the same internal standard (such as 2- butanol) used in generating the standards and weigh the contents again. Record the difference in masses as the mass of internal standard to the nearest 0.1 mg. The mass of the internal standard shall amount to between 2 and 6 percent of the mass of the test sample (standard). The addition of an internal standard reduces errors caused by variations in injection volumes.

(C) Ensure that this test sample (gasoline plus internal standard) is thoroughly mixed and transfer approximately 2 mL of the solution to a vial compatible with the autosampler if such equipment is used. (iv) After GC/OFID analysis, identify the oxygenates in the sample based on retention times, determine the peak area of each oxygenate and of the internal standard, and calculate the relative area response factor for each oxygenate.

(v) Monitor the peak area of the internal standard. A larger than expected peak area for the internal standard when analyzing a test sample may indicate that this oxygenate is present in the original sample. Prepare a new aliquot of the sample without addition of the oxygenate internal standard. If the presence of the oxygenate previously used as the internal standard can be detected, then either: (A) The concentration of this oxygenate must be assessed by the method of standard additions; or

(B) An alternative internal standard, based on an oxygenate that is not present in the original sample, must be utilized with new calibration curves.

(vi) Calculate the relative mass response factor (R<INF>mo) for each oxygenate based on the relative area response factor (R<INF>ao) and the calibration equation in paragraph (g)(6)(viii) of this section. (vii) Calculate the mass percent of the oxygenate in the test sample according to the following equation:

<GRAPHIC><TIF2>TR16FE94.002

where:

M<INF>o% = mass percent of the oxygenate in the test sample M<INF>s = mass of sample to which internal standard is added

(viii) If the mass percent exceeds the calibrated range, gravimetrically dilute a portion of the original sample to a concentration within the calibration range and analyze this sample starting

with paragraph (g)(7)(iii) of this section. (ix) Report the total weight percent oxygen as follows: (A) Subtract the peak areas due to dissolved oxygen, water, and the internal standard from the total summed peak areas of the chromatogram. (B) Assume the total summed peak area solely due to one of the oxygenates that the instrument is calibrated for and determine the total mass percent as that oxygenate based on paragraph (g)(7)(vii) of this section. For simplicity, chose an oxygenate having one oxygen atom per molecule.

(C) Multiply this concentration by the molar mass of oxygen and divide by the molar mass of the chosen oxygenate to determine the mass percent oxygen in the sample. For example, if the total peak area is based on MTBE, multiply by 16.00 (the molar mass of atomic oxygen) and divide by 88.15 (the molar mass of MTBE). (x) Sufficient sample should be retained to permit reanalysis. (8) Quality control procedures and accuracy. (i) The laboratory shall routinely monitor the repeatability (precision) of its analyses. The recommendations are:

(A) The preparation and analysis of laboratory duplicates at a rate of one per analysis batch or at least one per ten samples, whichever is more frequent.

(B) Laboratory duplicates shall be carried through all sample preparation steps independently.

(C) The range (R) for duplicate samples should be less than the following limits:

Oxygenate	Concentration mass percent	Upper limit for range mass percent
Methanol	0.27-1.07	0.010+0.043C
Ethanol	1.07-12.73	0.053C
MTBE	1.01-12.70	0.053C
DIPE	0.25-15.00	0.069+0.029C
ETBE	0.98-17.70	0.048C
TAME	1.00-18.04	0.074C
	1.04-18.59	0.060C

where:

C=(C<INF>o+C<INF>d)/2

C<INF>o=concentration of the original sample C<INF>d=concentration of the duplicate sample

R=Range, |C<INF>o-C<INF>d|

(D) If the limits in paragraph (g)(8)(i)(C) of this section are exceeded, the sources of error in the analysis should be determined, corrected, and all analyses subsequent to and including the last duplicate analysis confirmed to be within the compliance specifications must be repeated. The specification limits for the range and relative range of duplicate analyses are minimum performance requirements. The performance of individual laboratories may indeed be better than these minimum requirements. For this reason it is recommended that control charts be utilized to monitor the variability of measurements in order to optimally detect abnormal situations and ensure a stable measurement process.

(E) (1) For reference purposes, a single laboratory study of repeatability was conducted on approximately 27 replicates at each of five concentrations for each oxygenate. The variation of MTBE analyses as measured by standard deviation was very linear with respect to concentration. Where concentration is expressed as mass percent, over the concentration range of 0.25 to 15.0 mass percent this relationship is described by the equation:

standard deviation=0.00784 x C+0.0187

(2) The other oxygenates of interest, methanol, ethanol, DIPE, ETBE, and TAME, had consistent coefficients of variation at one mass percent and above:

Oxygenate	Concentration mass percent	Coefficient of variation percent of point

Methanol 1.07-12.73 1.43 Ethanol 1.01-12.70 1.43 DIPE..... 0.98-17.70 1.29 ETBE..... 1.00-18.04 2.00 TAME..... 1.04-18.59 1.62

(3) The relationship of standard deviation and concentration for methanol between 0.27 and 1.07 mass percent was very linear and is described by the equation:

standard deviation=0.0118 x C+0.0027

(4) Based on these relationships, repeatability for the selected oxygenates at 2.0 and 2.7 mass percent oxygen were determined to be as follows, where repeatability is defined as the half width of the 95 percent confidence interval (i.e., 1.96 standard deviations) for a single analysis at the stated concentration:

	Concentration							
	Mass			Repeatability				
Oxygenate	Mass percent oxygen		Volume percent oxygenate	mass percent oxygenate	Oxygenate	Mass percent oxygen		Volume percent oxygenate	mass percent oxygenate
Methanol	2.0	4.00	3.75	0.11	Ethanol	2.0	5.75	5.41	0.16
MTBE.....	2.00	11.00	11.00	0.21	DIPE.....	2.0	12.77	13.00	0.32
ETBE.....	2.0	12.77	12.74	0.50	TAME.....	2.0	12.77	12.33	0.41
Methanol.....	2.7	5.40	5.07	0.15	Ethanol.....	2.7	7.76	7.31	0.21
MTBE.....	2.7	14.88	14.88	0.26	DIPE.....	2.7	17.24	17.53	0.43
ETBE.....	2.7	17.24	17.20	0.67	TAME.....	2.7	17.24		

(ii) The laboratory shall routinely monitor the accuracy of its analyses. The recommendations are:

(A) Calibration check standards and calibration standards may be prepared from the same oxygenate stocks and by the same analyst. However, calibration check standards and calibration standards must be prepared from separate batches of the final diluted standards. For the specification limits listed in paragraph (g)(8)(ii)(C) of this section, the concentration of the check standards should be in the range given in paragraph (g)(8)(i)(C) of this section. (B) Calibration check standards shall be analyzed at a rate of at least one per analysis batch and at least one per 10 samples, whichever is more frequent.

(C) If the measured concentration of a calibration check standard is outside the range of 100.0% <plus-minus>6.0% of the theoretical concentration for a selected oxygenate of 1.0 mass percent or above, the sources of error in the analysis should be determined, corrected, and all analyses subsequent to and including the last standard analysis confirmed to be within the compliance specifications must be repeated. The specification limits for the accuracy of calibration check standards analyses are minimum performance requirements. The performance of individual laboratories may indeed be better than these minimum requirements. For this reason it is recommended that control charts be utilized to monitor the variability of measurements in order to optimally detect abnormal situations and ensure a stable measurement process.

(D) Independent reference standards should be purchased or prepared from materials that are independent of the calibration standards and calibration check standards, and must not be prepared by the same analyst. For the specification limits listed in paragraph (g)(8)(ii)(F) of this section, the concentration of the reference standards should be in the range given in paragraph (g)(8)(i)(C) of this section. (E) Independent reference standards shall be analyzed at a rate of

at least one per analysis batch and at least one per 100 samples, whichever is more frequent.

(F) If the measured concentration of an independent reference standard is outside the range of 100.0% <plus-minus>10.0% of the theoretical concentration for a selected oxygenate of 1.0 mass percent or above, the sources of error in the analysis should be determined, corrected, and all analyses subsequent to and including the last independent reference standard analysis confirmed to be within the compliance specifications in that batch must be repeated. The specification limits for the accuracy of independent reference standards analyses are minimum performance requirements. The performance of individual laboratories may be better than these minimum requirements. For this reason it is recommended that control charts be utilized to monitor the variability of measurements in order to optimally detect abnormal situations and ensure a stable measurement process.

(G) The preparation and analysis of spiked samples at a rate of one per analysis batch and at least one per ten samples. (H) Spiked samples shall be prepared by adding a volume of a standard to a known volume of sample. To ensure adequate method detection limits, the volume of the standard added to the sample shall be limited to 5% or less than the volume of the sample. The spiked sample shall be carried through the same sample preparation steps as the background sample.

(I) The percent recovery of the spiked sample shall be calculated as follows:

<GRAPHIC><TIF3>TR16FE94.003

where:

V<INF>o=Volume of sample (Ml)

V<INF>l=Volume of spiking standard added (Ml) C<INF>m=Measured concentration of spiked sample C<INF>o=Measured background concentration of sample C<INF>s=Known concentration of spiking standard

(J) If the percent recovery of any individual spiked sample is outside the range 100% <plus-minus>10% from the theoretical concentration, then the sources of error in the analysis must be determined and corrected, and all analyses subsequent to and including the last analysis confirmed to be within the compliance specifications must be repeated. The maintenance of control charts is one acceptable method or ensuring compliance with this specification. (K) (1) Either the range (absolute difference) or relative range (but not necessarily both) for duplicate samples shall be less than the following limits:

Oxygenate	Concentration (volume percent)	Range	Relative range (volume percent)
Methanol	1.0-12.0	7.2	
Ethanol	3.0-12.0	.....	7.1
t-Butanol	3.0-12.0	.....	9.4
MTBE	**3.0-15.0**	**0.55**	**9.2**

(2) Relative range is calculated as follows:

<GRAPHIC><TIF4>TR16FE94.004

where:

R<INF>r=relative range

R=range

C<INF>o=concentration of the original sample C<INF>d=concentration of the duplicate sample

(3) If the limits in paragraph (g)(8)(ii)(K)(1) of this section are exceeded, the sources of error in the analysis should be determined, corrected, and all analyses subsequent to and including the last duplicate analysis confirmed to be within the compliance specifications must be repeated.

The specification limits for the range and relative range of duplicate analyses are minimum performance requirements. The performance of individual laboratories may indeed be better than these minimum requirements. For this reason it is recommended that control charts be utilized to monitor the variability of measurements in order to optimally detect abnormal situations and ensure a stable measurement process. For reference purposes, a single laboratory study of precision (approximately 35 replicates) yielded the following estimates of method precision:

Oxygenate	Concentration (weight percent)	Concentration (volume percent)	Repeatability (Percent)	Oxygenate	Concentration (weight percent)	Concentration (volume percent)	Repeatability (Percent)
Methanol	2.0	3.7	0.11	Ethanol	2.0	5.4	0.24
t-Butanol	2.0	8.8	0.39	MTBE	2.0	11.0	0.37

(4) Repeatability is defined as the half width of the 95 percent confidence interval for a single analysis at the stated concentration. (iii) The laboratory shall routinely monitor the accuracy of its analyses. At a minimum this shall include: (A) Calibration check standards and calibration standards may be prepared from the same oxygenate stocks and by the same analyst. However, calibration check standards and calibration standards must be prepared from separate batches of the final diluted standards. For the specification limits listed in paragraph (g)(8)(iii)(C) of this section, the concentration of the check standards should be in the range given in paragraph (g)(8)(iii)(C) of this section. (B) Calibration check standards shall be analyzed at a rate of one per analysis batch or at least one per ten samples, whichever is more frequent.

(C) If the measured concentration of a calibration check standard is outside the range of 100%<plus-minus>10% percent of the theoretical concentration for methanol and ethanol, or 100%<plus-minus>13% for tbutanol and MTBE, the sources of error in the analysis should be

determined, corrected, and all analyses subsequent to and including the last standard analysis confirmed to be within the compliance specifications must be repeated. The specification limits for the accuracy of calibration check standards analyses are minimum performance requirements. The performance of individual laboratories may indeed be better than these minimum requirements. For this reason it is recommended that control charts be utilized to monitor the variability of measurements in order to optimally detect abnormal situations and ensure a stable measurement process. (D) Independent reference standards shall be purchased or prepared from materials that are independent of the calibration standards and calibration check standards, and must not be prepared by the same analyst. For the specification limits listed in paragraph (g)(8)(iii)(F) of this section, the concentration of the reference standards should be in the range given in paragraph (g)(8)(iii)(C) of this section.

(E) Independent reference standards shall be analyzed at a rate of one per analysis batch or at least one per 100 samples, whichever is more frequent.

(F) If the measured concentration of an independent reference standard is outside the range of 100%<plus-minus>10% of the theoretical concentration for methanol and ethanol, or 100%<plus-minus>13% for tbutanol and MTBE, the sources of error in the analysis should be determined, corrected, and all analyses subsequent to and including the last independent reference standard analysis confirmed to be within the compliance specifications in that batch must be repeated. The specification limits for the accuracy of independent reference standards analyses are minimum performance requirements. The performance of individual laboratories may indeed be better than these minimum requirements. For this reason it is recommended that control charts be utilized to monitor the variability of measurements in order to optimally detect abnormal situations and ensure a stable measurement process.

(G) If matrix effects are suspected, then spiked samples shall be prepared and analyzed as follows:

(1) Spiked samples shall be prepared by adding a volume of a standard to a known volume of sample. To ensure adequate method detection limits, the volume of the standard added to the sample should be minimized to 5% or less of the volume of the sample. The spiked sample should be carried through the same sample preparation steps as the background sample.

(2) The percent recovery of spiked samples should be calculated as follows:

<GRAPHIC><TIF5>TR16FE94.005

where:

C<INF>c=concentration of spiked sample C<INF>o=concentration of sample without spiking C<INF>s=known concentration of spiking standard V<INF>o=volume of sample V<INF>s=volume of spiking standard added to the sample (3) If the percent recovery of a spiked sample is outside the range of 100% <plus-minus>13% of the theoretical concentration for methanol and ethanol, or 100% <plus-minus>16% for t-butanol and MTBE, the sources of error in the analysis should be determined, corrected, and all analyses subsequent to and including the last analysis confirmed to be within the compliance specifications must be repeated. The specification limits for the accuracy of the percent recovery of spiked sample analyses are minimum performance requirements. The performance of individual laboratories may indeed be better than these minimum requirements. For this reason it is recommended that control charts be utilized to monitor the variability of measurements in order to optimally detect abnormal situations and ensure a stable measurement process.

(9)(i) Prior to January 1, 1997, and when the oxygenates present are limited to MTBE, ETBE, TAME, DIPE, tertiary-amyl alcohol, and C<INF>1 to C<INF>4 alcohols, any refiner, importer, or oxygenate blender may determine oxygen and oxygenate content using ASTM standard

method D-4815-93, entitled ``Standard Test Method for Determination of MTBE, ETBE, TAME, DIPE, tertiary-Amyl Alcohol and C<INF>1 to C<INF>4 Alcohols in Gasoline by Gas Chromatography," for purposes of meeting any testing requirement; provided that (ii) The refiner or importer test result is correlated with the method set forth in paragraphs (g)(1) through (g)(8) of this section. (h) Incorporations by reference. ASTM standard methods D-3606-92, D-1319-93, D-4815-93, D-2622-92, and D-86-90 with the exception of the degrees Fahrenheit figures in Table 9 of D-86-90, are incorporated by reference. These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(A) and 1 CFR part 51. Copies may be obtained from the American Society of Testing Materials, 1916 Race Street, Philadelphia, PA 19103. Copies may be inspected at the Air Docket Section (LE-131), room M-1500, U.S. Environmental Protection Agency, Docket No. A-92-12, 401 M Street SW., Washington, DC 20460 or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

Sec. 80.47 [Reserved]

Sec. 80.48 Augmentation of the complex emission model by vehicle testing.

(a) The provisions of this section apply only if a fuel claims emission reduction benefits from fuel parameters that are not included in the complex emission model or complex emission model database, or if the values of fuel parameters included in the complex emission model set forth in Sec. 80.45 fall outside the range of values for which the complex emission model is deemed valid. (b) To augment the complex emission model described at Sec. 80.45, the following requirements apply:

(1) The petitioner must obtain prior approval from the Administrator for the design of the test program before beginning the vehicle testing process. To obtain approval, the petitioner must at

minimum provide the following information: the fuel parameter to be evaluated for emission effects; the number and description of vehicles to be used in the test fleet, including model year, model name, vehicle identification number (VIN), mileage, emission performance (exhaust THC emission level), technology type, and manufacturer; a description of the methods used to procure and prepare the vehicles; the properties of the fuels to be used in the testing program (as specified at Sec. 80.49); the pollutants and emission categories intended to be evaluated; the precautions used to ensure that the effects of the parameter in question are independent of the effects of other parameters already included in the model; a description of the quality assurance procedures to be used during the test program; the statistical analysis techniques to be used in analyzing the test data, and the identity and location of the organization performing the testing.

(2) Exhaust emissions shall be measured per the requirements of this section and Sec. 80.49 through Sec. 80.62. (3) The nonexhaust emission model (including evaporative, running loss, and refueling VOC and toxics emissions) shall not be augmented by vehicle testing.

(4) The Agency reserves the right to observe and monitor any testing that is performed pursuant to the requirements of this section. (5) The Agency reserves the right to evaluate the quality and suitability of data submitted pursuant to the requirements of this section and to reject, re-analyze, or otherwise evaluate such data as is technically warranted.

(6) Upon a showing satisfactory to the Administrator, the Administrator may approve a petition to waive the requirements of this section and Sec. 80.49, Sec. 80.50(a), Sec. 80.60(d)(3), and Sec. 80.60(d)(4) in order to better optimize the test program to the needs of the particular fuel parameter. Any such waiver petition should provide information justifying the requested waiver, including an acceptable rationale and supporting data. Petitioners must obtain approval from the Administrator prior to conducting testing for which the requirements in question are

waived. The Administrator may waive the noted requirements in whole or in part, and may impose appropriate conditions on any such waiver.

(c) In the case of petitions to augment the complex model defined at Sec. 80.45 with a new parameter, the effect of the parameter being tested shall be determined separately, for each pollutant and for each emitter class category. If the parameter is not included in the complex model but is represented in whole or in part by one or more parameters included in the model, the petitioner shall be required to demonstrate the emission effects of the parameter in question independent of the effects of the already-included parameters. The petitioner shall also have to demonstrate the effects of the already-included parameters independent of the effects of the parameter in question. The emission performance of each vehicle on the fuels specified at Sec. 80.49, as measured through vehicle testing in accordance with Sec. 80.50 through Sec. 80.62, shall be analyzed to determine the effects of the fuel parameter being tested on emissions according to the following procedure:

(1) The analysis shall fit a regression model to the natural logarithm of emissions measured from addition fuels 1, 2, and 3 only (as specified at Sec. 80.49(a)) and adjusted as per paragraph (c)(1)(iv) of this section that includes the following terms: (i) A term for each vehicle that shall reflect the effect of the vehicle on emissions independent of fuel compositions. These terms shall be of the form D<INF>i x V<INF>i, where D<INF>i is the coefficient for the term and V<INF>i is a dummy variable which shall have the value 1.0 for the ith vehicle and the value 0 for all other vehicles.

(ii) A linear term in the parameter being tested for each emitter class, of the form A<INF>i x (P<INF>1-P<INF>1 (avg)) x E<INF>i, where A<INF>i is the coefficient for the term, P<INF>1 is the level of the parameter in question, P<INF>1 (avg) is the average level of the parameter in

question for all seven test fuels specified at Sec. 80.49(a)(1), and E<INF>i is a dummy variable representing emitter class, as defined at Sec. 80.62. For normal emitters, E<INF>1=1 and E<INF>2=0. For higher emitters, E<INF>1=0 and E<INF>2=1. (iii) For the VOC and NO<INF>x models, a squared term in the parameter being tested for each emitter class, of the form B<INF>i x (P<INF>1-P<INF>1 (avg))\2\ x E<INF>i, where B<INF>i is the coefficient for the term and where P<INF>1 , P<INF>1 (avg), and E<INF>i are as defined in paragraph (c)(1)(ii) of this section. (iv) To the extent that the properties of fuels 1, 2, and 3 which are incorporated in the complex model differ in value among the three fuels, the complex model shall be used to adjust the observed emissions from test vehicles on those fuels to compensate for those differences prior to fitting the regression model. (v) The A<INF>i and B<INF>i terms and coefficients developed by the regression described in this paragraph (c) shall be evaluated against the statistical criteria defined in paragraph (e) of this section. If both terms satisfy these criteria, then both terms shall be retained. If the B<INF>i term satisfies these criteria and the A<INF>i term does not, then both terms shall be retained. If the B<INF>i term does not satisfy these criteria, then the B<INF>i term shall be dropped from the regression model and the model shall be re-estimated. If, after dropping the B<INF>i term, the A<INF>i term does not satisfy these criteria, then both terms shall be dropped, all test data shall be reported to EPA, and the augmentation request shall be denied. (2) After completing the steps outlined in paragraph (c)(1) of this section, the analysis shall fit a regression model to a combined data set that includes vehicle testing results from all seven addition fuels specified at Sec. 80.49(a), the vehicle testing results used to develop the model specified at Sec. 80.45, and vehicle testing results used to support any prior augmentation requests which the Administrator deems necessary.

(i) The analysis shall fit the regression models described in paragraphs (c)(2) (ii) through (v) of this section to the natural logarithm of measured emissions.

(ii) All regressions shall include a term for each vehicle that shall reflect the effect of the vehicle on emissions independent of fuel compositions. These terms shall be of the form D<INF>i x V<INF>i, where D<INF>i is the coefficient for the term and V<INF>i is a dummy variable which shall have the value 1.0 for the ith vehicle and the value 0 for all other vehicles. Vehicles shall be represented by separate terms for each test program in which they were tested. The vehicle terms for the vehicles included in the test program undertaken by the petitioner shall be calculated based on the results from all seven fuels specified at Sec. 80.49(a). Note that the D<INF>i estimates for the petitioner's test vehicles in this regression are likely to differ from the D<INF>i estimates discussed in paragraph (c)(1)(i) of this section since they will be based on a different set of fuels. (iii) All regressions shall include existing complex model terms and their coefficients, including those augmentations that the Administrator deems necessary. All terms and coefficients shall be expressed in centered form.

(iv) All regressions shall include the linear and squared terms, and their coefficients, estimated in the final regression model described in paragraph (c)(1) of this section. (v) The VOC and NO<INF>x regressions shall include those interactive terms with other fuel parameters, of the form C<INF>i(1,j) x (P<INF>1-P<INF>1 (avg)) x (P<INF>j-P<INF>j (avg)) x E<INF>i, where C<INF>i(1,j) is the coefficient for the term, P<INF>1 is the level of the parameter being added to the model, P<INF>1 (avg) is the average level of the parameter being added for all seven addition fuels specified at Sec. 80.49(a), P<INF>j is the level of the other fuel parameter, P<INF>j (avg) is the centering value for the other fuel parameter used to develop the complex model or used in the other parameter's augmentation study, and E<INF>i is as defined in

paragraph (c)(1) of this section, which are found to satisfy the statistical criteria defined in paragraph (e) of this section. Such terms shall be added to the regression model in a stepwise manner. (3) The model described in paragraphs (c) (1) and (2) of this section shall be developed separately for normal-emitting and higheremitting vehicles. Each emitter class shall be treated as a distinct population for the purposes of determining regression coefficients. (4) Once the augmented models described in paragraphs (c) (1) through (3) of this section have been developed, they shall be converted to an uncentered form through appropriate algebraic manipulation.

(5) The augmented model described in paragraph (c)(4) of this section shall be used to determine the effects of the parameter in question at levels between the levels in Fuels 1 and 3, as defined at Sec. 80.49(a)(1), for all fuels which claim emission benefits from the parameter in question.

(d)(1) In the case of petitions to augment the complex model defined at Sec. 80.45 by extending the range of an existing complex model parameter, the effect of the parameter being tested shall be determined separately, for each pollutant and for each technology group and emitter class category, at levels between the extension level and the nearest limit of the core of the data used to develop the unaugmented complex model as follows:

Fuel parameter	Data core limits	
	Lower	Upper
Sulfur, ppm	10	450
RVP, psi	7	10
E200, vol %	33	66
E300, vol %	72	94
Aromatics, vol %	18	46
Benzene, vol %	0.4	1.8
Olefins, vol %	1	19
Oxygen, wt %		
As ethanol	0	3.4
All others:	0	

(2) The emission performance of each vehicle on the fuels specified at Sec. 80.49(b)(2), as measured through vehicle testing in accordance with Secs. 80.50 through 80.62, shall be analyzed to determine the effects of the fuel parameter being tested on emissions according to the following procedure:

(i) The analysis shall incorporate the vehicle testing data from the extension fuels specified at Sec. 80.49(b), the vehicle testing results used to develop the model specified at Sec. 80.45, and vehicle testing results used to support any prior augmentation requests which the Administrator deems necessary. A regression incorporating the following terms shall be fitted to the natural logarithm of emissions contained in this combined data set:

(A) A term for each vehicle that shall reflect the effect of the vehicle on emissions independent of fuel compositions. These terms shall be of the form D<INF>i x V<INF>i, where D<INF>i is the coefficient for the term and V<INF>i is a dummy variable which shall have the value 1.0 for the ith vehicle and the value 0 for all other vehicles. Vehicles shall be represented by separate terms for each test program in which they were tested. The vehicle terms for the vehicles included in the test program undertaken by the petitioner shall be calculated based on the results from all three fuels specified at Sec. 80.49(b)(2).

(B) Existing complex model terms that do not include the parameter being extended and their coefficients, including those augmentations that the Administrator deems necessary. The centering values for these terms shall be identical to the centering values used to develop the complex model described at Sec. 80.45. (C) Existing complex model terms that include the parameter being extended. The coefficients for these terms shall be estimated by the regression. The centering values for these terms shall be identical to the centering values used to develop the

complex model described at Sec. 80.45.

(D) If the unaugmented VOC or NO<INF>x complex models do not contain a squared term for the parameter being extended, such a term should be added in a stepwise fashion after completing the model described in paragraphs (d)(2)(i)(A) through (C) of this section. The coefficient for this term shall be estimated by the regression. The centering value for this term shall be identical to the centering value used to develop the complex model described at Sec. 80.45. (E) The terms defined in paragraphs (d)(2)(i)(C) and (D) of this section shall be evaluated against the statistical criteria defined in paragraph (e) of this section.

(ii) The model described in paragraph (d)(2)(i) of this section shall be developed separately for normal-emitting and higher-emitting vehicles, as defined at Sec. 80.62. Each emitter class shall be treated as a distinct population for the purposes of determining regression coefficients.

(e) Statistical criteria. (1) The petitioner shall be required to submit evidence with the petition which demonstrates the statistical validity of the regression described in paragraph (c) or (d) of this section, including at minimum:

(i) Evidence demonstrating that colinearity problems are not severe, including but not limited to variance inflation statistics of less than 10 for the second-order and interactive terms included in the regression model.

(ii) Evidence demonstrating that the regression residuals are normally distributed, including but not limited to the skewness and Kurtosis statistics for the residuals. (iii) Evidence demonstrating that overfitting and underfitting risks have been balanced, including but not limited to the use of Mallow's C<INF>p criterion.

(2) The petitioner shall be required to submit evidence with the petition which demonstrates that the appropriate terms have been included in the regression, including at minimum: (i)

Descriptions of the analysis methods used to develop the regressions, including any computer code used to analyze emissions data and the results of regression runs used to develop the proposed augmentation, including intermediate regressions produced during the stepwise regression process.

(ii) Evidence demonstrating that the significance level used to include terms in the model was equal to 0.90. (f) The complex emission model shall be augmented with the results of vehicle testing as follows:

(1) The terms and coefficients determined in paragraph (c) or (d) of this section shall be used to supplement the complex emission model equation for the corresponding pollutant and emitter category. These terms and coefficients shall be weighted to reflect the contribution of the emitter category to in-use emissions as shown at Sec. 80.45. (2) If the candidate parameter is not included in the unaugmented complex model and is not represented in whole or in part by one or more parameters included in the model, the modification shall be accomplished by adding the terms and coefficients to the complex model equation for that pollutant, technology group, and emitter category. (3) If the parameter is included in the complex model but is being tested at levels beyond the current range of the model, the terms and coefficients determined in paragraph (d) of this section shall be used to supplement the complex emission model equation for the corresponding pollutant.

(i) The terms and coefficients of the complex model described at Sec. 80.45 shall be used to evaluate the emissions performance of fuels with levels of the parameter being tested that are within the valid range of the model, as defined at Sec. 80.45. (ii) The emissions performance of fuels with levels of the parameter that are beyond the valid range of the unaugmented model shall be given in percentage change terms by 100-[(100+A) x (100+C)/ (100+B)], where:

(A) ``A'' shall be set equal to the percentage change in emissions for a fuel with identical fuel property values to the fuel being evaluated except for the parameter being extended, which shall be set equal to the nearest limit of the data core, using the unaugmented complex model.

(B) ``B'' shall be set equal to the percentage change in emissions for the fuel described in paragraph (f)(3)(i) of this section according to the augmented complex model.

(C) ``C'' shall be set equal to the percentage change in emissions of the actual fuel being evaluated using the augmented complex model. (g) EPA reserves the right to analyze the data generated during vehicle testing, to use such analyses to determine the validity of the augmentation petition, and to use such data to update the complex model for use in certifying all reformulated gasolines. (h) Duration of acceptance of emission effects determined through vehicle testing:

(1) If the Agency does not accept, modify, or reject a particular augmentation for inclusion in an updated complex model (performed through rulemaking), then the augmentation shall remain in effect until the next update to the complex model takes effect. (2) If the Agency does reject or modify a particular augmentation for inclusion in an updated complex model, then the augmentation shall no longer be able to be used as of the date the updated complex model is deemed to take effect, unless the following conditions and limitations apply:

(i) The augmentation in question may continue to be used by those fuel suppliers which can prove, to the Administrator's satisfaction, that the fuel supplier had already begun producing a fuel utilizing the augmentation at the time the revised model is promulgated. (ii) The augmentation in question may only be used to evaluate the emissions performance of fuels in conjunction with the complex emission model in effect as of the date of production of the fuels. (iii) The augmentation may only be used for three years of fuel production, or a total of five

years from the date the augmentation first took effect, whichever is shorter. (3) The Administrator shall determine when sufficient new information on the effects of fuel properties on vehicle emissions has been obtained to warrant development of an updated complex model.

Sec. 80.49 Fuels to be used in augmenting the complex emission model through vehicle testing.

(a) Seven fuels (hereinafter called the ``addition fuels") shall be tested for the purpose of augmenting the complex emission model with a parameter not currently included in the complex emission model. The properties of the addition fuels are specified in paragraphs (a) (1) and (2) of this section. The addition fuels shall be specified with at least the same level of detail and precision as in Sec. 80.43(c), and this information must be included in the petition submitted to the Administrator requesting augmentation of the complex emission model. (1) The seven addition fuels to be tested when augmenting the complex model specified at Sec. 80.45 with a new fuel parameter shall have the properties specified as follows:

Properties of Fuels To Be Tested When Augmenting the Model With a New Fuel Parameter

	Fuels						
Fuel property	1	2	3	4	5	6	7
Sulfur, ppm	150	150	150	35	35	500	500
Benzene, vol %.....	1.0	1.0	1.0	0.5	0.5	1.3	1.3
RVP, psi.....	7.5	7.5	7.5	6.5	6.5	8.1	8.1
E200, %.....	50	50	50	62	62	37	37
E300, %.....	85	85	85	92	92	79	79
Aromatics, vol %.....	27	27	27	20	20		

45	45	Olefins, vol %.....	9.0	9.0	9.0	2.0	2.0	18	18				
		Oxygen, wt %.....	2.1	2.1	2.1	2.7	2.7	1.5	1.5				
Octane, (R+M)/2.....	87	87	87	87	87	87	87						
New Parameter\1\	C	C+B/2	B	C	B	C	B						

\1\C=Candidate level, B=Baseline level.

(i) For the purposes of vehicle testing, the ``baseline" level of the parameter shall refer to the level of the parameter in Clean Air Act baseline gasoline. The ``candidate" level of the parameter shall refer to the most extreme value of the parameter, relative to baseline levels, for which the augmentation shall be valid. (ii) If the fuel parameter for which the fuel supplier is petitioning EPA to augment the complex emission model (hereinafter defined as the ``candidate parameter") is not specified for Clean Air Act summer baseline fuel, then the baseline level for the candidate parameter shall be set at the levels found in typical gasoline. This level and the justification for this level shall be included in the petitioner's submittal to EPA prior to initiating the test program, and EPA must approve this level prior to the start of the program. (iii) If the candidate parameter is not specified for Clean Air Act summer baseline fuel, and is not present in typical gasoline, its baseline level shall be zero.

(2) The addition fuels shall contain detergent control additives in accordance with section 211(l) of the Clean Air Act Amendments of 1990 and the associated EPA requirements for such additives. (3) The addition fuels shall be specified with at least the same level of detail and precision as in Sec. 80.43(c), and this information shall be included in the petition submitted to the Administrator requesting augmentation of the complex emission model. (i) Paraffin levels in Fuels 1 and 2 shall be altered from the paraffin level in Fuel 3 to compensate for the addition or removal of the candidate parameter, if necessary. Paraffin levels in Fuel 4 shall be altered

from the paraffin level in Fuel 5 to compensate for the addition or removal of the candidate parameter, if necessary. Paraffin levels in Fuel 6 shall be altered from the paraffin level in Fuel 7 to compensate for the addition or removal of the candidate parameter, if necessary.

(ii) Other properties of Fuels 4 and 6 shall not vary from the levels for Fuels 5 and 7, respectively, unless such variations are the naturally-occurring result of the changes described in paragraphs (a)(1) and (2) of this section. Other properties of Fuels 1 and 2 shall not vary from the levels for Fuel 3, unless such variations are the naturally- occurring result of the changes described in paragraphs (a)(1) and (2) of this section.

(iii) The addition fuels shall be specified with at least the same level of detail and precision as defined in paragraph (a)(5)(i) of this section, and this information must be included in the petition submitted to the Administrator requesting augmentation of the complex emission model.

(4) The properties of the addition fuels shall be within the blending tolerances defined in this paragraph (a)(4) relative to the values specified in paragraphs (a)(1) and (2) of this section. Fuels that do not meet these tolerances shall require the approval of the Administrator to be used in vehicle testing to augment the complex emission model:

Fuel parameter	Blending tolerance
Sulfur content	<plus-minus>25 ppm
Benzene content	<plus-minus>0.2 vol %.
RVP	<plus-minus>0.2 psi.
E200 level	<plus-minus>2 %.
E300 level	<plus-minus>4 %.
Oxygenate content	<plus-minus>1.0 vol %.
Aromatics content	<plus-minus>2.7 vol %.
Olefins content	<plus-minus>2.5 vol %.
Saturates content	<plus-minus>2.0 vol %.
Octane	<plus-minus>0.5.

Detergent control additives..... <plus-minus>10% of the level required by EPA's detergents rule.

Candidate parameter..... To be determined as part of the augmentation process.

(5) The composition and properties of the addition fuels shall be determined by averaging a series of independent tests of the properties and compositional factors defined in paragraph (a)(5)(i) of this section as well as any additional properties or compositional factors for which emission benefits are claimed. (i) The number of independent tests to be conducted shall be sufficiently large to reduce the measurement uncertainty for each parameter to a sufficiently small value. At a minimum the 95% confidence limits (as calculated using a standard t-test) for each parameter must be within the following range of the mean measured value of each parameter: Fuel parameter Measurement uncertainty API gravity..... <plus-minus>0.2 deg.API. Sulfur content..... <plus-minus>10 ppm. Benzene content..... <plus-minus>0.02 vol %. RVP..... <plus-minus>0.05 psi. Octane..... <plus-minus>0.2 (R+M/2).

E200 level..... <plus-minus>2%. E300 level..... <plus-minus>2%.

Oxygenate content..... <plus-minus>0.2 vol %. Aromatics content..... <plus-minus>0.5 vol %. Olefins content..... <plus-minus>0.3 vol %. Saturates content..... <plus-minus>1.0 vol %. Detergent control additives..... <plus-minus>2% of the level required by EPA's detergents rule.

Candidate parameter..... To be determined as part of the

augmentation process.

(ii) The 95% confidence limits for measurements of fuel parameters for which emission reduction benefits are claimed and for which tolerances are not defined in paragraph (a)(5)(i) of this section must be within <plus-minus>5% of the mean measured value. (iii) Each test must be conducted in the same laboratory in accordance with the procedures outlined at Sec. 80.46.

(b) Three fuels (hereinafter called the ``extension fuels'') shall be tested for the purpose of extending the valid range of the complex emission model for a parameter currently included in the complex emission model. The properties of the extension fuels are specified in paragraphs (b)(2) through (4) of this section. The extension fuels shall be specified with at least the same level of detail and precision as in Sec. 80.43(c), and this information must be included in the petition submitted to the Administrator requesting augmentation of the complex emission model. Each set of three extension fuels shall be used only to extend the range of a single complex model parameter. (1) The ``extension level'' shall refer to the level to which the parameter being tested is to be extended. The three fuels to be tested when extending the range of fuel parameters already included in the complex model or a prior augmentation to the complex model shall be referred to as ``extension fuels.''

(2) The composition and properties of the extension fuels shall be as described in paragraphs (b)(2) (i) and (ii) of this section. (i) The extension fuels shall have the following levels of the parameter being extended:

Level of Existing Complex Model Parameters Being Extended

Fuel property being extended	Extension fuel No. 1	Extension fuel No. 2	Extension fuel No. 3
Sulfur, ppm	Extension level	80	450
Benzene, vol %	Extension level	0.5	1.5
RVP, psi	Extension level	6.7	8.0
E200, %	Extension level		

38 61 E300, %..... Extension level..... 78 92 Aromatics, vol %.....
Extension level..... 20 45 Olefins, vol %..... Extension level..... 3.0 18
Oxygen, wt %..... Extension level..... 1.7 2.7 Octane, R+M/2.....
87 87 87

(ii) The levels of parameters other than the one being extended shall be given by the following table for all three extension fuels:

Levels for Fuel Parameters Other Than Those Being Extended

Fuel property	Extension fuel No. 1	Extension fuel No. 2	Extension fuel No. 3	Fuel property	Extension fuel No. 1	Extension fuel No. 2	Extension fuel No. 3
Sulfur, ppm	150	150	150	Benzene, vol %	1.0	1.0	1.0
RVP, psi	7.5	7.5	7.5	E200, %	50	50	50
E300, %	85	85	85	Aromatics, vol %	25	25	25
Olefins, vol %	9.0	9.0	9.0	Oxygen, wt %	2.0	2.0	2.0
Octane, R+M/2	87	87	87				

(3) If the Complex Model for any pollutant includes one or more interactive terms involving the parameter being extended, then two additional extension fuels shall be required to be tested for each such interactive term. These additional extension fuels shall have the following properties:

(i) The parameter being tested shall be present at its extension level.

(ii) The interacting parameter shall be present at the levels specified in paragraph (b)(2)(i) of this section for extension Fuels 2 and 3.

(iii) All other parameters shall be present at the levels specified in paragraphs (b)(2)(ii) and (b)(3) of this section. (4) All extension fuels shall contain detergent control additives in

accordance with Section 211(l) of the Clean Air Act Amendments of 1990 and the associated EPA requirements for such additives. (c) The addition fuels defined in paragraph (a) of this section and the extension fuels defined in paragraph (b) of this section shall meet the following requirements for blending and measurement precision: (1) The properties of the test and extension fuels shall be within the blending tolerances defined in this paragraph (c) relative to the values specified in paragraphs (a) and (b) of this section. Fuels that do not meet the following tolerances shall require the approval of the Administrator to be used in vehicle testing to augment the complex emission model:

Fuel parameter	Blending tolerance
Sulfur content	<plus-minus>25 ppm
Benzene content	<plus-minus>0.2 vol %.
RVP	<plus-minus>0.2 psi.
E200 level	<plus-minus>2 %.
E300 level	<plus-minus>4 %.
Oxygenate content	<plus-minus>1.5 vol %.
Aromatics content	<plus-minus>2.7 vol %.
Olefins content	<plus-minus>2.5 vol %.
Saturates content	<plus-minus>2.0 vol %.
Octane	<plus-minus>0.5.
Candidate parameter	To be determined as part of the augmentation process.

(2) The extension and addition fuels shall be specified with at least the same level of detail and precision as defined in paragraph (c)(2)(ii) of this section, and this information must be included in the petition submitted to the Administrator requesting augmentation of the complex emission model.

(i) The composition and properties of the addition and extension fuels shall be determined by

averaging a series of independent tests of the properties and compositional factors defined in paragraph (c)(2)(ii) of this section as well as any additional properties or compositional factors for which emission benefits are claimed. (ii) The number of independent tests to be conducted shall be sufficiently large to reduce the measurement uncertainty for each parameter to a sufficiently small value. At a minimum the 95% confidence limits (as calculated using a standard t-test) for each parameter must be within the following range of the mean measured value of each parameter: Fuel parameter Measurement uncertainty API gravity..... <plus-minus>0.2 deg.API. Sulfur content..... <plus-minus>5 ppm. Benzene content..... <plus-minus>0.05 vol %. RVP..... <plus-minus>0.08 psi. Octane..... <plus-minus>0.1 (R+M/2).

E200 level..... <plus-minus>2 %. E300 level..... <plus-minus>2 %.

Oxygenate content..... <plus-minus>0.2 vol %. Aromatics content..... <plus-minus>0.5 vol %. Olefins content..... <plus-minus>0.3 vol %. Saturates content..... <plus-minus>1.0 vol.%

Octane..... <plus-minus>0.2.

Candidate parameter..... To be determined as part of the augmentation process.

(iii) Petitioners shall obtain approval from EPA for the 95% confidence limits for measurements of fuel parameters for which emission reduction benefits are claimed and for which tolerances are not defined in paragraph (c)(2)(i) of this section. (iv) Each test must be conducted in the same laboratory in accordance with the procedures outlined at Sec. 80.46. (v) The complex emission model described at Sec. 80.45 shall be used to adjust the emission

performance of the addition and extension fuels to compensate for differences in fuel compositions that are incorporated in the complex model, as described at Sec. 80.48. Compensating adjustments for naturally-resulting variations in fuel parameters shall also be made using the complex model. The adjustment process is described in paragraph (d) of this section. (d) The complex emission model described at Sec. 80.45 shall be used to adjust the emission performance of addition and extension fuels to compensate for differences in fuel parameters other than the parameter being tested. Compensating adjustments for naturallyresulting variations in fuel parameters shall also be made using the complex model. These adjustments shall be calculated as follows: (1) Determine the exhaust emissions performance of the actual addition or extension fuels relative to the exhaust emissions performance of Clean Air Act baseline fuel using the complex model. For addition fuels, set the level of the parameter being tested at baseline levels for purposes of emissions performance evaluation using the complex model. For extension fuel #1, set the level of the parameter being extended at the level specified in extension fuel #2. Also determine the exhaust emissions performance of the addition fuels specified in paragraph (a)(1) of this section with the level of the parameter being tested set at baseline levels. (2) Calculate adjustment factors for each addition fuel as follows: (i) Adjustment factors shall be calculated using the formula:

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where

A=the adjustment factor

P(actual)=the performance of the actual fuel used in testing according to the complex model

P(nominal)=the performance that would have been achieved by the test fuel defined in paragraph (a)(1) of this section according to the complex model (as described in paragraph (d)(1) of this

section).

(ii) Adjustment factors shall be calculated for each pollutant and for each emitter class.

(3) Multiply the measured emissions from each vehicle by the corresponding adjustment factor for the appropriate addition or extension fuel, pollutant, and emitter class. Use the resulting adjusted emissions to conduct all modeling and emission effect estimation activities described in Sec. 80.48. (e) All fuels included in vehicle testing programs shall have an octane number of 87.5, as measured by the (R+M)/2 method following the ASTM D4814 procedures, to within the measurement and blending tolerances specified in paragraph (c) of this section. (f) A single batch of each addition or extension fuel shall be used throughout the duration of the testing program.

Sec. 80.50 General test procedure requirements for augmentation of the emission models.

(a) The following test procedure must be followed when testing to augment the complex emission model described at Sec. 80.45. (1) VOC, NO<INF>X, CO, and CO<INF>2 emissions must be measured for all fuel-vehicle combinations tested.

(2) Toxics emissions must be measured when testing the extension fuels per the requirements of Sec. 80.49(a) or when testing addition fuels 1, 2, and 3 per the requirements of Sec. 80.49(a).

(3) When testing addition fuels 4, 5, 6, and 7 per the requirements of Sec. 80.49(a), toxics emissions need not be measured. However, EPA reserves the right to require the inclusion of such measurements in the test program prior to approval of the test program if evidence exists which suggests that adverse interactive effects of the parameter in question may exist for toxics emissions. (b) The general requirements per 40 CFR 86.130-96 shall be met. (c) The engine starting and restarting procedures per 40 CFR 86.136-90 shall be followed.

(d) Except as provided for at Sec. 80.59, general preparation of vehicles being tested shall

follow procedures detailed in 40 CFR 86.130-96 and 86.131-96.

Sec. 80.51 Vehicle test procedures.

The test sequence applicable when augmenting the emission models through vehicle testing is as follows: (a) Prepare vehicles per Sec. 80.50. (b) Initial preconditioning per Sec. 80.52(a)(1). Vehicles shall be refueled randomly with the fuels required in Sec. 80.49 when testing to augment the complex emission model.

(c) Exhaust emissions tests, dynamometer procedure per 40 CFR 86.137-90 with:

(1) Exhaust Benzene and 1,3-Butadiene emissions measured per Sec. 80.55; and

(2) Formaldehyde and Acetelaldehyde emissions measured per Sec. 80.56.

Sec. 80.52 Vehicle preconditioning.

(a) Initial vehicle preconditioning and preconditioning between tests with different fuels shall be performed in accordance with the ``General vehicle handling requirements" per 40 CFR 86.132-96, up to and including the completion of the hot start exhaust test. (b) The preconditioning procedure prescribed at 40 CFR 86.132-96 shall be observed for preconditioning vehicles between tests using the same fuel.

Secs. 80.53-80.54 [Reserved]

Sec. 80.55 Measurement methods for benzene and 1,3-butadiene.

(a) Sampling for benzene and 1,3-butadiene must be accomplished by bag sampling as used for total hydrocarbons determination. This procedure is detailed in 40 CFR 86.109. (b) Benzene and 1,3-butadiene must be analyzed by gas chromatography. Expected values for benzene and 1,3-butadiene in bag samples for the baseline fuel are 4.0 ppm and 0.30 ppm respectively. At least three standards ranging from at minimum 50% to 150% of these expected values must be used to calibrate the detector. An additional standard of at most 0.01 ppm must

also be measured to determine the required limit of quantification as described in paragraph (d) of this section.

(c) The sample injection size used in the chromatograph must be sufficient to be above the laboratory determined limit of quantification (LOQ) as defined in paragraph (d) of this section for at least one of the bag samples. A control chart of the measurements of the standards used to determine the response, repeatability, and limit of quantitation of the instrumental method for 1,3-butadiene and benzene must be reported.

(d) As in all types of sampling and analysis procedures, good laboratory practices must be used. See, Lawrence, Principals of Environmental Analysis, 55 Analytical Chemistry 14, at 2210-2218 (1983) (copies may be obtained from the publisher, American Chemical Society, 1155 16th Street NW., Washington, DC 20036). Reporting reproducibility control charts and limits of detection measurements are integral procedures to assess the validity of the chosen analytical method. The repeatability of the test method must be determined by measuring a standard periodically during testing and recording the measured values on a control chart. The control chart shows the error between the measured standard and the prepared standard concentration for the periodic testing. The error between the measured standard and the actual standard indicates the uncertainty in the analysis. The limit of detection (LOD) is determined by repeatedly measuring a blank and a standard prepared at a concentration near an assumed value of the limit of detection. If the average concentration minus the average of the blanks is greater than three standard deviations of these measurements, then the limit of detection is at least as low as the prepared standard. The limit of quantitation (LOQ) is defined as ten times the standard deviation of these measurements. This quantity defines the amount of sample required to be measured for a valid analysis. (e) Other sampling and analytical techniques will be

allowed if they can be proven to have equal specificity and equal or better limits of quantitation. Data from alternative methods that can be demonstrated to have equivalent or superior limits of detection, precision, and accuracy may be accepted by the Administrator with individual prior approval.

Sec. 80.56 Measurement methods for formaldehyde and acetaldehyde.

(a) Formaldehyde and acetaldehyde will be measured by drawing exhaust samples from heated lines through either 2,4- Dinitrophenylhydrazine (DNPH) impregnated cartridges or impingers filled with solutions of DNPH in acetonitrile (ACN) as described in Secs. 86.109 and 86.140 of this chapter for formaldehyde analysis. Diluted exhaust sample volumes must be at least 15 L for impingers containing 20 ml of absorbing solution (using more absorbing solution in the impinger requires proportionally more gas sample to be taken) and at least 4 L for cartridges. As required in Sec. 86.109 of this chapter, two impingers or cartridges must be connected in series to detect breakthrough of the first impinger or cartridge. (b) In addition, sufficient sample must be drawn through the collecting cartridges or impingers so that the measured quantity of aldehyde is sufficiently greater than the minimum limit of quantitation of the test method for at least a portion of the exhaust test procedure. The limit of quantitation is determined using the technique defined in Sec. 80.55(d).

(c) Each of the impinger samples are quantitatively transferred to a 25 mL volumetric flask (5 mL more than the sample impinger volume) and brought to volume with ACN. The cartridge samples are eluted in reversed direction by gravity feed with 6mL of ACN. The eluate is collected in a graduated test tube and made up to the 5mL mark with ACN. Both the impinger and cartridge samples must be analyzed by HPLC without additional sample preparation. (d) The analysis of the aldehyde derivatives collected is accomplished with a high performance

liquid chromatograph (HPLC). Standards consisting of the hydrazone derivative of formaldehyde and acetaldehyde are used to determine the response, repeatability, and limit of quantitation of the HPLC method chosen for acetaldehyde and formaldehyde.

(e) Other sampling and analytical techniques will be allowed if they can be proven to have equal specificity and equal or better limits of quantitation. Data from alternative methods that can be demonstrated to have equivalent or superior limits of detection, precision, and accuracy may be accepted by the Administrator with individual prior approval.

Secs. 80.57-80.58 [Reserved]

Sec. 80.59 General test fleet requirements for vehicle testing.

(a) The test fleet must consist of only 1989-91 MY vehicles which are technologically equivalent to 1990 MY vehicles, or of 1986-88 MY vehicles for which no changes to the engine or exhaust system that would significantly affect emissions have been made through the 1990 model year. To be technologically equivalent vehicles must have closedloop systems and possess adaptive learning. (b) No maintenance or replacement of any vehicle component is permitted except when necessary to ensure operator safety or as specifically permitted in Sec. 80.60 and Sec. 80.61. All vehicle maintenance procedures must be reported to the Administrator. (c) Each vehicle in the test fleet shall have no fewer than 4,000 miles of accumulated mileage prior to being included in the test program.

Sec. 80.60 Test fleet requirements for exhaust emission testing.

(a) Candidate vehicles which conform to the emission performance requirements defined in paragraphs (b) through (d) of this section shall be obtained directly from the in-use fleet and tested in their as-received condition.

(b) Candidate vehicles for the test fleet must be screened for their exhaust VOC emissions in

accordance with the provisions in Sec. 80.62.

(c) On the basis of pretesting pursuant to paragraph (b) of this section, the test fleet shall be subdivided into two emitter group subfleets: the normal emitter group and the higher emitter group. (1) Each vehicle with an exhaust total hydrocarbon (THC) emissions rate which is less than or equal to twice the applicable emissions standard shall be placed in the normal emitter group. (2) Each vehicle with an exhaust THC emissions rate which is greater than two times the applicable emissions standard shall be placed in the higher emitter group.

(d) The test vehicles in each emitter group must conform to the requirements of paragraphs (d)(1) through (4) of this section. (1) Test vehicles for the normal emitter sub-fleet must be selected from the list shown in this paragraph (d)(1). This list is arranged in order of descending vehicle priority, such that the order in which vehicles are added to the normal emitter sub-fleet must conform to the order shown (e.g., a ten-vehicle normal emitter group sub-fleet must consist of the first ten vehicles listed in this paragraph (d)(1)). If more vehicles are tested than the minimum number of vehicles required for the normal emitter sub-fleet, additional vehicles are to be added to the fleet in the order specified in this paragraph (d)(1), beginning with the next vehicle not already included in the group. The vehicles in the normal emitter sub-fleet must possess the characteristics indicated in the list. If the end of the list is reached in adding vehicles to the normal emitter sub-fleet and additional vehicles are desired then they shall be added beginning with vehicle number one, and must be added to the normal emitter sub-fleet in accordance with the order in Table A:

Table A--Test Fleet Definitions

Veh. No.	Fuel system	Catalyst	Air injection	EGR	group
Manufacturer 1	Multi	3W	No Air	EGR	1 GM
2.....	Multi.....	3W.....	No Air.....	No EGR.....	2 Ford.
3.....	TBI.....	3W.....	No Air.....	EGR.....	3 GM.
4.....	Multi.....	3W+OX.....	Air.....	EGR.....	4 Ford.
5.....	Multi.....	3W.....	No Air.....	EGR.....	1 Honda.
6.....	Multi.....	3W.....	No Air.....	No EGR.....	2 GM.
7.....	TBI.....	3W.....	No Air.....	EGR.....	3 Chrysler.
8.....	Multi.....	3W+OX.....	Air.....	EGR.....	4 GM.
9.....	TBI.....	3W+OX.....	Air.....	EGR.....	7 Chrysler.
10.....	Multi.....	3W.....	Air.....	EGR.....	5 Toyota.
11.....	Multi.....	3W.....	No Air.....	EGR.....	1 Ford.
12.....	Multi.....	3W.....	No Air.....	No EGR.....	2 Chrysler.
13.....	Carb.....	3W+OX.....	Air.....	EGR.....	9 Toyota.
14.....	TBI.....	3W.....	No Air.....	EGR.....	3 Ford.
15.....	Multi.....	3W+OX.....	Air.....	EGR.....	4 GM.
16.....	Multi.....	3W.....	No Air.....	EGR.....	1 Toyota.
17.....	Multi.....	3W.....	No Air.....	No EGR.....	2 Mazda.
18.....	TBI.....	3W.....	No Air.....	EGR.....	3 GM.
19.....	Multi.....	3W+OX.....	Air.....	EGR.....	4 Ford.
20.....	Multi.....	3W.....	No Air.....	EGR.....	1 Nissan.

Table B--Tech Group Definitions in Table A

Tech group	Fuel system	Catalyst	Air injection	EGR
1	Multi	3W	No Air	EGR
2				

Multi..... 3W..... No Air..... No EGR. 3.....

TBI..... 3W..... No Air..... EGR. 4.....

Multi..... 3W+OX..... Air..... EGR. 5.....

Multi..... 3W..... Air..... EGR. 6..... TBI.....

3W..... Air..... EGR. 7..... TBI.....

3W+OX..... Air..... EGR. 8..... TBI.....

3W..... No Air..... No EGR. 9..... Carb.....

3W+OX Air EGR

Legend:

Fuel system:

Multi=Multi-point fuel injection

TBI=Throttle body fuel injection

Carb=Carburetted

Catalyst:

3W=3-Way catalyst

3W+OX=3-Way catalyst plus an oxidation catalyst Air Injection:

Air=Air injection

EGR=Exhaust gas recirculation

(2) Test vehicles for the higher emitter sub-fleet shall be selected from the in-use fleet in accordance with paragraphs (a) and (b) of this section and with Sec. 80.59. Test vehicles for the higher emitter sub-fleet are not required to follow the pattern established in paragraph (d)(1) of this section.

(3) The minimum test fleet size is 20 vehicles. Half of the vehicles tested must be included in

the normal emitter sub-fleet and half of the vehicles tested must be in the higher emitter sub-fleet. If additional vehicles are tested beyond the minimum of twenty vehicles, the additional vehicles shall be distributed equally between the normal and higher emitter sub-fleets.

(4) For each emitter group sub-fleet, 70 <plus-minus> 9.5% of the sub-fleet must be LDVs, & 30 <plus-minus> 9.5% must be LDTs. LDTs include light-duty trucks class 1 (LDT1), and light-duty trucks class 2 (LDT2) up to 8500 lbs GVWR.

Sec. 80.61 [Reserved]

Sec. 80.62 Vehicle test procedures to place vehicles in emitter group sub-fleets.

One of the two following test procedures must be used to screen candidate vehicles for their exhaust THC emissions to place them within the emitter group sub-fleets in accordance with the requirements of Sec. 80.60.

(a) Candidate vehicles may be tested for their exhaust THC emissions using the federal test procedure as detailed in 40 CFR part 86, with gasoline conforming to requirements detailed in 40 CFR 86.113- 90. The results shall be used in accordance with the requirements in Sec. 80.60 to place the vehicles within their respective emitter groups.

(b) Alternatively, candidate vehicles may be screened for their exhaust THC emissions with the IM240 short test procedure.\1\ The results from the IM240 shall be converted into results comparable with the standard exhaust FTP as detailed in this paragraph (b) to place the vehicles within their respective emitter groups in accordance with the requirements of Sec. 80.60.

\1\EPA Technical Report EPA-AA-TSS-91-1. Copies may be obtained by ordering publication number PB92104405 from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161.

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(1) A candidate vehicle with IM240 test results <0.367 grams THC per vehicle mile shall be

classified as a normal emitter. (2) A candidate vehicle with IM240 test results <gr-thn-eq>0.367 grams THC per vehicle mile shall be classified as a higher emitter.

Secs. 80.63-80.64 [Reserved]

Sec. 80.65 General requirements for refiners, importers, and oxygenate blenders.

(a) Date requirements begin. The requirements of this subpart D apply to all gasoline produced, imported, transported, stored, sold, or dispensed:

(1) At any location other than retail outlets and wholesale purchaser-consumer facilities on or after December 1, 1994; and (2) At any location on or after January 1, 1995. (b) Certification of gasoline and RBOB. Gasoline or RBOB sold or dispensed in a covered area must be certified under Sec. 80.40. (c) Standards must be met on either a per-gallon or on an average basis. (1) Any refiner or importer, for each batch of reformulated gasoline or RBOB it produces or imports, shall meet: (i) Those standards and requirements it designated under paragraph (d) of this section for per-gallon compliance on a per-gallon basis; and

(ii) Those standards and requirements it designated under paragraph (d) of this section for average compliance on an average basis over the applicable averaging period; except that (iii) Refiners and importers are not required to meet the oxygen standard for RBOB.

(2) Any oxygenate blender, for each batch of reformulated gasoline it produces by blending oxygenate with RBOB shall, subsequent to the addition of oxygenate, meet the oxygen standard either per-gallon or average over the applicable averaging period. (3)(i) For each averaging period, and separately for each parameter that may be met either per-gallon or on average, any refiner shall designate for each refinery, and any importer or oxygenate blender shall designate, its gasoline or RBOB as being subject to the standard applicable to that parameter on either a per-gallon or average basis. For any specific averaging period and parameter all batches of

gasoline or RBOB shall be designated as being subject to the per-gallon standard, or all batches of gasoline and RBOB shall be designated as being subject to the average standard. For any specific averaging period and parameter a refiner for a refinery, or any importer or oxygenate blender, may not designate certain batches as being subject to the per-gallon standard and others as being subject to the average standard.

(ii) In the event any refiner for a refinery, or any importer or oxygenate blender, fails to meet the requirements of paragraph (c)(3)(i) of this section and for a specific averaging period and parameter designates certain batches as being subject to the per-gallon standard and others as being subject to the average standard, all batches produced or imported during the averaging period that were designated as being subject to the average standard shall, ab initio, be redesignated as being subject to the per- gallon standard. This redesignation shall apply regardless of whether the batches in question met or failed to meet the per-gallon standard for the parameter in question.

(d) Designation of gasoline. Any refiner or importer of gasoline shall designate the gasoline it produces or imports as follows: (1) All gasoline produced or imported shall be properly designated as either reformulated or conventional gasoline, or as RBOB. (2) All gasoline designated as reformulated or as RBOB shall be further properly designated as:

(i) Either VOC-controlled or not VOC-controlled; (ii) In the case of gasoline or RBOB designated as VOC-controlled, either intended for use in VOC-Control Region 1 or VOC-Control Region 2 (as defined in Sec. 80.71);

(iii) Either oxygenated fuels program reformulated gasoline, or not oxygenated fuels program reformulated gasoline. Gasoline or RBOB must be designated as oxygenated fuels program reformulated gasoline if such gasoline:

(A) Contains more than 2.0 weight percent oxygen; and (B) Arrives at a terminal from which gasoline is dispensed into trucks used to deliver gasoline to an oxygenated fuels control area within five days prior to the beginning of the oxygenated fuels control period for that control area;

(iv) For gasoline or RBOB produced, imported, sold, dispensed or used during the period January 1, 1995 through December 31, 1997, either as being subject to the simple model standards, or to the complex model standards;

(v) For each of the following parameters, either gasoline or RBOB which meets the standard applicable to that parameter on a per-gallon basis or on average:

(A) Toxics emissions performance;

(B) NO<INF>x emissions performance; (C) Benzene content;

(D) With the exception of RBOB, oxygen content; (E) In the case of VOC-controlled gasoline or RBOB certified using the simple model, RVP; and

(F) In the case of VOC-controlled gasoline or RBOB certified using the complex model, VOC emissions performance; and (vi) In the case of RBOB, either as RBOB that may be blended with any oxygenate, or RBOB that may be blended with an ether only. (3) Each batch of reformulated or conventional gasoline or RBOB produced or imported at each refinery or import facility, or each batch of blendstock produced and sold or transferred if blendstock accounting is required under Sec. 80.101(d)(1)(ii), shall be assigned a number (the ``batch number''), consisting of the EPA-assigned refiner, importer, or oxygenate blender registration number, the EPA- assigned facility registration number, the last two digits of the year in which the batch was produced, and a unique number for the batch, beginning with the number one for the first batch produced or imported each calendar year and each subsequent batch during the calendar year

being assigned the next sequential number (e.g., 4321-4321-95-001, 4321-4321- 95-002, etc.).

(e) Determination of properties. (1) Each refiner or importer shall determine the value of each of the properties specified in paragraph (e)(2)(i) of this section for each batch of reformulated gasoline it produces or imports prior to the gasoline leaving the refinery or import facility, by collecting and analyzing a representative sample of gasoline taken from the batch, using the methodologies specified in Sec. 80.46. This collection and analysis shall be carried out either by the refiner or importer, or by an independent laboratory. A batch of simple model reformulated gasoline may be released by the refiner or importer prior to the receipt of the refiner's or importer's test results except for test results for oxygen, benzene, and RVP. (2) In the event that the values of any of these properties is determined by the refiner or importer and by an independent laboratory in conformance with the requirements of paragraph (f) of this section: (i) The results of the analyses conducted by the refiner or importer for such properties shall be used as the basis for compliance determinations unless the absolute value of the differences of the test results from the two laboratories is larger than the following values:

Fuel property	Range
Sulfur content	25 ppm
Aromatics content	2.7 vol %
Olefins content	2.5 vol %
Benzene content	0.21 vol %
Ethanol content	0.4 vol %
Methanol content	0.2 vol %
MTBE (and other methyl ethers)	0.6 vol %
ETBE (and other ethyl ethers)	0.6 vol %
TAME	0.6 vol %

t-Butanol content..... 0.6 vol %

RVP..... 0.3 psi 50%

distillation..... 5 deg.F 90%

distillation..... 5 deg.F API

Gravity..... 0.3 deg.API

(ii) In the event the values from the two laboratories for any property fall outside these ranges, the refiner or importer shall use as the basis for compliance determinations: (A) The larger of the two values for the property, except the smaller of the two results shall be used for MTBE, ethanol, methanol, or ETBE for calculating compliance with all requirements and standards except RVP; or

(B) The refiner shall have the gasoline analyzed for the property at one additional independent laboratory. If this second independent laboratory obtains a result for the property that is within the range, as listed in paragraph (e)(2)(i) of this section, of the refiner's or importer's result for this property, then the refiner's or importer's result shall be used as the basis for compliance determinations. (f) Independent analysis requirement. (1) Any refiner or importer of reformulated gasoline or RBOB shall carry out a program of independent sample collection and analyses for the reformulated gasoline it produces or imports, which meets the requirements of one of the following two options:

(i) Option 1. The refiner or importer shall, for each batch of reformulated gasoline or RBOB that is produced or imported, have the value for each property specified in paragraph (e)(2)(i) of this section determined by an independent laboratory that collects and analyzes a representative sample from the batch using the methodologies specified in Sec. 80.46.

(ii) Option 2. The refiner or importer shall have a periodic independent testing program carried out for all reformulated gasoline produced or imported, which shall consist of the

following: (A) An independent laboratory shall collect a representative sample from each batch of reformulated gasoline that the refiner or importer produces or imports;

(B) EPA will identify up to ten percent of the total number of samples collected under paragraph (f)(1)(ii)(A) of this section; and (C) The designated independent laboratory shall, for each sample identified by EPA under paragraph (f)(1)(ii)(B) of this section, determine the value for each property using the methodologies specified in Sec. 80.46.

(2)(i) Any refiner or importer shall designate one independent laboratory for each refinery or import facility at which reformulated gasoline or RBOB is produced or imported. This independent laboratory will collect samples and perform analyses in compliance with the requirements of this paragraph (f) of this section. (ii) Any refiner or importer shall identify this designated independent laboratory to EPA under the registration requirements of Sec. 80.76.

(iii) In order to be considered independent: (A) The laboratory shall not be operated by any refiner or importer, and shall not be operated by any subsidiary or employee of any refiner or importer;

(B) The laboratory shall be free from any interest in any refiner or importer; and

(C) The refiner or importer shall be free from any interest in the laboratory; however

(D) Notwithstanding the restrictions in paragraphs (f)(2)(iii) (A) through (C) of this section, a laboratory shall be considered independent if it is owned or operated by a gasoline pipeline company, regardless of ownership or operation of the gasoline pipeline company by refiners or importers, provided that such pipeline company is owned and operated by four or more refiners or importers. (iv) Use of a laboratory that is debarred, suspended, or proposed for debarment pursuant to the Governmentwide Debarment and Suspension regulations, 40 CFR part 32, or the Debarment, Suspension and Ineligibility provisions of the Federal Acquisition Regulations, 48 CFR part 9, subpart 9.4, shall be deemed noncompliance with the requirements of this paragraph (f).

(v) Any laboratory that fails to comply with the requirements of this paragraph (f) shall be subject to debarment or suspension under Governmentwide Debarment and Suspension regulations, 40 CFR part 32, or the Debarment, Suspension and Ineligibility regulations, Federal Acquisition Regulations, 48 CFR part 9, subpart 9.4. (3) Any refiner or importer shall, for all samples collected or analyzed pursuant to the requirements of this paragraph (f), cause its designated independent laboratory:

(i) At the time the designated independent laboratory collects a representative sample from a batch of reformulated gasoline, to: (A) Obtain the refiner's or importer's assigned batch number for the batch being sampled;

(B) Determine the volume of the batch; (C) Determine the identification number of the gasoline storage tank or tanks in which the batch was stored at the time the sample was collected;

(D) Determine the date and time the batch became finished reformulated gasoline, and the date and time the sample was collected; (E) Determine the grade of the batch (e.g., premium, mid-grade, or regular); and

(F) In the case of reformulated gasoline produced through computercontrolled in-line blending, determine the date and time the blending process began and the date and time the blending process ended, unless exempt under paragraph (f)(4) of this section; (ii) To retain each sample collected pursuant to the requirements of this paragraph (f) for a period of 30 days, except that this period shall be extended to a period of up to 180 days upon request by EPA; (iii) To submit to EPA periodic reports, as follows: (A) A report for the period January through March shall be submitted by May 31; a report for the period April through June shall be submitted by August 31; a report for the period July through September shall be submitted by November 30; and a report for the period October through December shall be submitted by

February 28; (B) Each report shall include, for each sample of reformulated gasoline that was analyzed pursuant to the requirements of this paragraph (f):

(1) The results of the independent laboratory's analyses for each property; and

(2) The information specified in paragraph (f)(3)(i) of this section for such sample; and

(iv) To supply to EPA, upon EPA's request, any sample collected or a portion of any such sample.

(4) Any refiner that produces reformulated gasoline using computercontrolled in-line blending equipment is exempt from the independent sampling and testing requirements specified in paragraphs (f) (1) through (3) of this section, provided that such refiner: (i) Obtains from EPA an exemption from these requirements. In order to seek such an exemption, the refiner shall submit a petition to EPA, such petition to include:

(A) A description of the refiner's computer-controlled in-line blending operation, including a description of: (1) The location of the operation; (2) The length of time the refiner has used the operation; (3) The volumes of gasoline produced using the operation since the refiner began the operation or during the previous three years, whichever is shorter, by grade;

(4) The movement of the gasoline produced using the operation to the point of fungible mixing, including any points where all or portions of the gasoline produced is accumulated in gasoline storage tanks;

(5) The physical lay-out of the operation; (6) The automated control system, including the method of monitoring and controlling blend properties and proportions; (7) Any sampling and analysis of gasoline that is conducted as a part of the operation, including on-line, off-line, and composite, and a description of the methods of sampling, the methods of analysis, the parameters analyzed and the frequency of such analyses, and any written, printed, or computer-stored results of such analyses, including information on the retention of such results; (8) Any sampling and

analysis of gasoline produced by the operation that occurs downstream from the blending operation prior to fungible mixing of the gasoline, including any such sampling and analysis by the refiner and by any purchaser, pipeline or other carrier, or by independent laboratories;

(9) Any quality assurance procedures that are carried out over the operation; and

(10) Any occasion(s) during the previous three years when the refiner adjusted any physical or chemical property of any gasoline produced using the operation downstream from the operation, including the nature of the adjustment and the reason the gasoline had properties that required adjustment; and

(B) A description of the independent audit program of the refiner's computer-controlled in-line blending operation that the refiner proposes will satisfy the requirements of this paragraph (f)(4); and (ii) Carries out an independent audit program of the refiner's computer-controlled in-line blending operation, such program to include:

(A) For each batch of reformulated gasoline produced using the operation, a review of the documents generated that is sufficient to determine the properties and volume of the gasoline produced; (B) Audits that occur no less frequently than annually; (C) Reports of the results of such audits submitted to the refiner, and to EPA by the auditor no later than February 28 of each year; (D) Audits that are conducted by an auditor that meets the nondebarred criteria specified in Sec. 80.125 (a) and/or (d); and (iii) Complies with any other requirements that EPA includes as part of the exemption.

(g) Marking of conventional gasoline. [Reserved] (h) Compliance audits. Any refiner, importer, and oxygenate blender of any reformulated gasoline or RBOB shall have the reformulated gasoline or RBOB it produced, imported, or blended during each calendar year audited for compliance with the requirements of this subpart D, in accordance with the

requirements of subpart F of this part, at the conclusion of each calendar year.

(i) Exclusion from compliance calculations of gasoline received from others. Any refiner for each refinery, any oxygenate blender for each oxygenate blending facility, and any importer shall exclude from all compliance calculations the volume and properties of any reformulated gasoline that is produced at another refinery or oxygenate blending facility or imported by another importer.

Sec. 80.66 Calculation of reformulated gasoline properties.

(a) All volume measurements required by these regulations shall be temperature adjusted to 60 degrees Fahrenheit. (b) The percentage of oxygen by weight contained in a gasoline blend, based upon its percentage oxygenate by volume and density, shall exclude denaturants and water.

(c) The properties of reformulated gasoline consist of per-gallon values separately and individually determined on a batch-by-batch basis using the methodologies specified in Sec. 80.46 for each of those physical and chemical parameters necessary to determine compliance with the standards to which the gasoline is subject, and per-gallon values for the VOC, NO<INF>X, and toxics emissions performance standards to which the gasoline is subject.

(d) Per-gallon oxygen content shall be determined based upon the weight percent oxygen of a representative sample of gasoline, using the method set forth in Sec. 80.46(g). The total oxygen content associated with a batch of gasoline (in percent-gallons) is calculated by multiplying the weight percent oxygen content times the volume. (e) Per-gallon benzene content shall be determined based upon the volume percent benzene of a representative sample of a batch of gasoline by the method set forth in Sec. 80.46(e). The total benzene content associated with a batch of gasoline (in percent-gallons) is calculated by multiplying the volume percent benzene content times the volume.

(f) Per-gallon RVP shall be determined based upon the measurement of RVP of a representative sample of a batch of gasoline by the sampling methodologies specified in Appendix D of this part and the testing methodology specified in Appendix E of this part. The total RVP value associated with a batch of gasoline (in RVP-gallons) is calculated by multiplying the RVP times the volume. (g) (1) Per-gallon values for VOC and NO<INF>X emissions reduction shall be calculated using the methodology specified in Sec. 80.46 that is appropriate for the gasoline.

(2) Per-gallon values for toxic emissions performance reduction shall be established using:

(i) For gasoline subject to the simple model, the methodology under Sec. 80.42 that is appropriate for the gasoline; and (ii) For gasoline subject to the complex model, the methodology specified in Sec. 80.46 that is appropriate for the gasoline. (3) The total VOC, NO<INF>X, and toxic emissions performance reduction values associated with a batch of gasoline (in percent reduction-gallons) is calculated by multiplying the per-gallon percent emissions performance reduction times the volume of the batch.

Sec. 80.67 Compliance on average.

The requirements of this section apply to all reformulated gasoline and RBOB produced or imported for which compliance with one or more of the requirements of Sec. 80.41 is determined on average (``averaged gasoline").

(a) Compliance survey required in order to meet standards on average. (1) Any refiner, importer, or oxygenate blender that complies with the compliance survey requirements of Sec. 80.68 has the option of meeting the standards specified in Sec. 80.41 for average compliance in addition to the option of meeting the standards specified in Sec. 80.41 for per-gallon compliance; any refiner, importer, or oxygenate blender that does not comply with the survey requirements

must meet the standards specified in Sec. 80.41 for per-gallon compliance, and does not have the option of meeting standards on average. (2)(i)(A) A refiner or importer that produces or imports reformulated gasoline that exceeds the average standards for oxygen or benzene (but not for other parameters that have average standards) may use such gasoline to offset reformulated gasoline which does not achieve such average standards, but only if the reformulated gasoline that does not achieve such average standards is sold to ultimate consumers in the same covered area as was the reformulated gasoline which exceeds average standards; provided that (B) Prior to the beginning of the averaging period when the averaging approach described in paragraph (a)(2)(i)(A) of this section is used, the refiner or importer obtains approval from EPA. In order to seek such approval, the refiner or importer shall submit a petition to EPA, such petition to include:

(1) The identification of the refiner and refinery, or importer, the covered area, and the averaging period; and (2) A detailed description of the procedures the refiner or importer will use to ensure the gasoline is produced by the refiner or is imported by the importer and is used only in the covered area in question and is not used in any other covered area, and the record keeping, reporting, auditing, and other quality assurance measures that will be followed to establish the gasoline is used as intended; and (C) The refiner or importer properly completes any requirements that are specified by EPA as conditions for approval of the petition. (ii) Any refiner or importer that meets the requirements of paragraph (a)(2)(i) of this section will be deemed to have satisfied the compliance survey requirements of Sec. 80.68 for the covered area in question.

(b) Scope of averaging. (1) Any refiner shall meet all applicable averaged standards separately for each of the refiner's refineries; (2)(i) Any importer shall meet all applicable averaged

standards on the basis of all averaged reformulated gasoline and RBOB imported by the importer; except that

(ii) Any importer to whom different standards apply for gasoline imported at different facilities by operation of Sec. 80.41(i), shall meet the averaged standards separately for the averaged reformulated gasoline and RBOB imported into each group of facilities that is subject to the same standards; and

(3) Any oxygenate blender shall meet the averaged standard for oxygen separately for each of the oxygenate blender's oxygenate blending facilities, except that any oxygenate blender may group the averaged reformulated gasoline produced at facilities at which gasoline is produced for use in a single covered area. (c) RVP and VOC emissions performance reduction compliance on average. (1) The VOC-controlled reformulated gasoline and RBOB produced at any refinery or imported by any importer during the period January 1 through September 15 of each calendar year which is designated for average compliance for RVP or VOC emissions performance on average must meet the standards for RVP (in the case of a refinery or importer subject to the simple model standards) or the standards for VOC emissions performance reduction (in the case of a refinery or importer subject to the complex model standards) which are applicable to that refinery or importer as follows:

(i) Gasoline and RBOB designated for VOC Control Region 1 must meet the standards for that Region which are applicable to that refinery or importer; and

(ii) Gasoline and RBOB designated for VOC Control Region 2 must meet the standards for that Region which are applicable to that refinery or importer.

(2) In the case of a refinery or importer subject to the simple model standards, each gallon of reformulated gasoline and RBOB designated as being VOC-controlled may not exceed the

maximum standards for RVP specified in Sec. 80.41(b) which are applicable to that refiner or importer.

(3) In the case of a refinery or importer subject to the complex model standards, each gallon of reformulated gasoline designated as being VOC-controlled must equal or exceed the minimum standards for VOC emissions performance specified in Sec. 80.41 which are applicable to that refinery or importer.

(d) Toxics emissions reduction and benzene compliance on average. (1) The averaging period for the requirements for benzene content and toxics emission performance is January 1 through December 31 of each year.

(2) The reformulated gasoline and RBOB produced at any refinery or imported by any importer during the toxics emissions performance and benzene averaging periods that is designated for average compliance for these parameters shall on average meet the standards specified for toxics emissions performance and benzene in Sec. 80.41 which are applicable to that refinery or importer. (3) Each gallon of reformulated gasoline may not exceed the maximum standard for benzene content specified in Sec. 80.41 which is applicable to that refinery or importer. (e) NO<INF>X compliance on average. (1) The averaging period for NO<INF>X emissions performance is January 1 through December 31 of each year.

(2) The requirements of this paragraph (e) apply separately to reformulated gasoline and RBOB in the following categories: (i) All reformulated gasoline and RBOB that is designated as VOCcontrolled; and

(ii) All reformulated gasoline and RBOB that is not designated as VOC-controlled.

(3) The reformulated gasoline and RBOB produced at any refinery or imported by any importer during the NO<INF>X averaging period that is designated for average compliance for NO<INF>X shall on average meet the standards for NO<INF>X specified in Sec. 80.41 that are

applicable to that refinery or importer.

(4) Each gallon of reformulated gasoline must equal or exceed the minimum standards for NO<INF>X emissions performance specified in Sec. 80.41 which are applicable to that refinery or importer. (f) Oxygen compliance on average. (1) The averaging period for the oxygen content requirements is January 1 through December 31 of each year.

(2) The requirements of this paragraph (f) apply separately to reformulated gasoline in the following categories: (i) All reformulated gasoline;

(ii) All reformulated gasoline that is not designated as being OPRG; and

(iii) In the case of reformulated gasoline certified under the simple model, that which is designated as VOC- controlled. (3) The reformulated gasoline produced at any refinery or imported by any importer during the oxygen averaging period that is designated for average compliance for oxygen shall on average meet the standards for oxygen specified in Sec. 80.41 that is applicable to that refinery or importer.

(4) The reformulated gasoline that is produced at any oxygenate blending facility by blending RBOB with oxygenate that is designated for average compliance for oxygen shall on average meet the standards for oxygen specified in Sec. 80.41 that is applicable to that oxygenate blending facility.

(5) Each gallon of reformulated gasoline must meet the applicable minimum requirements, and in the case of simple model reformulated gasoline the minimum and maximum requirements, for oxygen content specified in Sec. 80.41.

(g) Compliance calculation. To determine compliance with the averaged standards in Sec. 80.41, any refiner for each of its refineries at which averaged reformulated gasoline or RBOB is produced, any oxygenate blender for each of its oxygenate blending facilities at which oxygen

averaged reformulated gasoline is produced, and any importer that imports averaged reformulated gasoline or RBOB shall, for each averaging period and for each portion of gasoline for which standards must be separately achieved, and for each relevant standard, calculate:

(1)(i) The compliance total using the following formula:

<GRAPHIC><TIF7>TR16FE94.007

where

V<INF>i=the volume of gasoline batch i std=the standard for the parameter being evaluated

n=the number of batches of gasoline produced or imported during the averaging period

and

(ii) The actual total using the following formula:

<GRAPHIC><TIF8>TR16FE94.008

where

V<INF>i=the volume of gasoline batch i parm<INF>i=the parameter value of gasoline batch i

n=the number of batches of gasoline produced or imported during the averaging period

(2) For each standard, compare the actual total with the compliance total.

(3) For the VOC, NO<INF>X, and toxics emissions performance and oxygen standards, the actual totals must be equal to or greater than the compliance totals to achieve compliance. (4) For RVP and benzene standards, the actual total must be equal to or less than the compliance totals to achieve compliance. (5) If the actual total for the oxygen standard is less than the compliance total, or if the actual total for the benzene standard is greater than the compliance total, credits for these parameters must be obtained from another refiner, importer or (in the case of oxygen) oxygenate blender in order to achieve compliance: (i) The total number of oxygen credits required to achieve compliance is calculated by subtracting the actual total from the

compliance total oxygen; and

(ii) The total number of benzene credits required to achieve compliance is calculated by subtracting the compliance total from the actual total benzene.

(6) If the actual total for the oxygen standard is greater than the compliance total, or if the actual total for the benzene standard is less than the compliance totals, credits for these parameters are generated:

(i) The total number of oxygen credits which may be traded to another refinery, importer, or oxygenate blender is calculated by subtracting the compliance total from the actual total for oxygen; and (ii) The total number of benzene credits which may be traded to another refinery or importer is calculated by subtracting the actual total from the compliance total for benzene. (h) Credit transfers. (1) Compliance with the averaged standards specified in Sec. 80.41 for oxygen and benzene (but for no other standards or requirements) may be achieved through the transfer of oxygen and benzene credits provided that: (i) The credits were generated in the same averaging period as they are used;

(ii) The credit transfer takes place no later than fifteen working days following the end of the averaging period in which the reformulated gasoline credits were generated; (iii) The credits are properly created; (iv) The credits are transferred directly from the refiner, importer, or oxygenate blender that creates the credits to the refiner, importer, or oxygenate blender that uses the credits to achieve compliance;

(v) Oxygen credits are generated, transferred, and used: (A) In the case of gasoline subject to the simple model standards, only in the following categories:

(1) VOC-controlled, non-OPRG;

(2) Non-VOC-controlled, non-OPRG;

(3) Non-VOC-controlled, OPRG; and

(4) VOC-controlled, OPRG; and

(B) In the case of gasoline subject to the complex model standards, only in the following categories:

(1) OPRG; and

(2) Non-OPRG;

(vi) Oxygen credits generated from gasoline subject to the complex model standards are not used to achieve compliance for gasoline subject to the simple model standards;

(vii) Oxygen credits are not used to achieve compliance with the minimum oxygen content standards in Sec. 80.41; and (viii) Benzene credits are not used to achieve compliance with the maximum benzene content standards in Sec. 80.41. (2) No party may transfer any credits to the extent such a transfer would result in the transferor having a negative credit balance at the conclusion of the averaging period for which the credits were transferred. Any credits transferred in violation of this paragraph are improperly created credits.

(3) In the case of credits that were improperly created, the following provisions apply:

(i) Improperly created credits may not be used to achieve compliance, regardless of a credit transferee's good faith belief that it was receiving valid credits;

(ii) No refiner, importer, or oxygenate blender may create, report, or transfer improperly created credits; and (iii) Where any credit transferor has in its balance at the conclusion of any averaging period both credits which were properly created and credits which were improperly created, the properly created credits will be applied first to any credit transfers before the transferor may apply any credits to achieve its own compliance. (i) Average compliance for reformulated gasoline produced or imported before January 1, 1995. In the case of any reformulated gasoline that is intended to be used beginning January 1, 1995, but that is produced

or imported prior to that date: (1) Any refiner or importer may meet standards specified in Sec. 80.41 for average compliance for such gasoline, provided the refiner or importer has the option of meeting standards on average for 1995 under paragraph (a) of this section, and provided the refiner or importer elects to be subject to average standards under Sec. 80.65(c)(3); and

(2) Any average compliance gasoline under paragraph (i)(1) of this section shall be combined with average compliance gasoline produced during 1995 for purposes of compliance calculations under paragraph (g) of this section.

Sec. 80.68 Compliance surveys.

(a) Compliance survey option 1. In order to satisfy the compliance survey requirements, any refiner, importer, or oxygenate blender shall properly conduct a program of compliance surveys in accordance with a survey program plan which has been approved by the Administrator of EPA in each covered area which is supplied with any gasoline for which compliance is achieved on average that is produced by that refiner or oxygenate blender or imported by that importer. Such approval shall be based upon the survey program plan meeting the following criteria: (1) The survey program shall consist of at least four surveys which shall occur during the following time periods: one survey during the period January 1 through May 31; two surveys during the period June 1 through September 15; and one survey during the period September 16 through December 31.

(2) The survey program shall meet the criteria stated in paragraph (c) of this section.

(3) In the event that any refiner, importer, or oxygenate blender fails to properly carry out an approved survey program, the refiner, importer, or oxygenate blender shall achieve compliance with all applicable standards on a per-gallon basis for the calendar year in which the failure occurs, and may not achieve compliance with any standard on an average basis during this

calendar year. This requirement to achieve compliance per-gallon shall apply ab initio to the beginning of any calendar year in which the failure occurs, regardless of when during the year the failure occurs. (b) Compliance survey option 2. A refiner, importer, or oxygenate blender shall be deemed to have satisfied the compliance survey requirements described in paragraph (a) of this section if a comprehensive program of surveys is properly conducted in accordance with a survey program plan which has been approved by the Administrator of EPA. Such approval shall be based upon the survey program plan meeting the following criteria:

(1) The initial schedule for the conduct of surveys shall be as follows:

(i) 120 surveys shall be conducted in 1995; (ii) 80 surveys shall be conducted in 1996; (iii) 60 surveys shall be conducted in 1997; (iv) 50 surveys shall be conducted in 1998 and thereafter. (2) This initial survey schedule shall be adjusted as follows: (i) In the event one or more ozone nonattainment areas in addition to the nine specified in Sec. 80.70, opt into the reformulated gasoline program, the number of surveys to be conducted in the year the area or areas opt into the program and in each subsequent year shall be increased according to the following formula:

<GRAPHIC><TIF9>TR16FE94.009

where:

ANS<INF>i = the adjusted number of surveys for year i; i = the opt-in year and each subsequent year

NS<INF>i = the number of surveys according to the schedule in paragraph (b)(1) of this section in year i; i = the opt-in year and each subsequent year

V<INF>opt-in = the total volume of gasoline supplied to the opt-in covered areas in the year preceding the year of the opt-in V<INF>orig = the total volume of gasoline supplied to the original nine covered areas in the year preceding the year of the opt-in

(ii) In the event that any covered area fails a survey or survey series according to the criteria set forth in paragraph (c) of this section, the annual decreases in the numbers of surveys prescribed by paragraph (b)(1) of this section, as adjusted by paragraph (b)(2)(i) of this section, shall be adjusted as follows in the year following the year of the failure. Any such adjustment to the number of surveys shall remain in effect so long as any standard for the affected covered area has been adjusted to be more stringent as a result of a failed survey or survey series. The adjustments shall be calculated according to the following formula:

<GRAPHIC><TIF10>TR16FE94.010

where:

ANS<INF>i = the adjusted number of surveys in year i; i = the year after the failure and each subsequent year V<INF>failed = the total volume of gasoline supplied to the covered area which failed the survey or survey series in the year of the failure

V<INF>total = the total volume of gasoline supplied to all covered areas in the year of the failure

NS<INF>i = the number of surveys in year i according to the schedule in paragraph (b)(1) of this section and as adjusted by paragraph (b)(2)(i) of this section; i = the year after the failure and each subsequent year

(3) The survey program shall meet the criteria stated in paragraph (c) of this section.

(4) On each occasion the comprehensive survey program does not occur as specified in the approved plan with regard to any covered area:

(i) Each refiner, importer, and oxygenate blender who supplied any reformulated gasoline or RBOB to the covered area and who has not satisfied the survey requirements described in paragraph (a) of this section shall be deemed to have failed to carry out an approved survey program; and

(ii) The covered area will be deemed to have failed surveys for VOC and NO<INF>X emissions performance, and survey series for benzene and oxygen, and toxic and NO<INF>X emissions performance. (c) General survey requirements. (1) During the period January 1, 1995 through December 31, 1997:

(i) Any sample taken from a retail gasoline storage tank for which the three most recent deliveries were of gasoline designated as meeting:

(A) Simple model standards shall be considered a ``simple model sample''; or

(B) Complex model standards shall be considered a ``complex model sample.''

(ii) A survey shall consist of the combination of a simple model portion and a complex model portion, as follows: (A) The simple model portion of a survey shall consist of all simple model samples that are collected pursuant to the applicable survey design in a single covered area during any consecutive seven-day period and that are not excluded under paragraph (c)(6) of this section.

(B) The complex model portion of a survey shall consist of all complex model samples that are collected pursuant to the applicable survey design in a single covered area during any consecutive seven-day period and that are not excluded under paragraph (c)(6) of this section.

(iii) (A) The simple model portion of each survey shall be representative of all gasoline certified using the simple model which is being dispensed in the covered area. (B) The complex model portion of each survey shall be representative of all gasoline certified using the complex model which is being dispensed in the covered area. (2) Beginning on January 1, 1998:

(i) A survey shall consist of all samples that are collected pursuant to the applicable survey design in a single covered area during any consecutive seven-day period and that are not excluded under paragraph (c)(6) of this section.

(ii) A survey shall be representative of all gasoline which is being dispensed in the covered area.

(3) A VOC survey, and prior to January 1, 2000, a NO<INF>X survey, shall consist of any survey conducted during the period June 1 through September 15.

(4) (i) A toxics, oxygen, and benzene survey series shall consist of all surveys conducted in a single covered area during a single calendar year.

(ii) A NO<INF>X survey series shall consist of all surveys conducted in a single covered area during the periods January 1 through May 31, and September 16 through December 31 during a single calendar year.

(5) (i) Each simple model sample included in a survey shall be analyzed for oxygenate type and content, benzene content, aromatic hydrocarbon content, and RVP in accordance with the methodologies specified in Sec. 80.46; and

(ii) Each complex model sample included in a survey shall be analyzed for oxygenate type and content, olefins, benzene, sulfur, and aromatic hydrocarbons, E-200, E-300, and RVP in accordance with the methodologies specified in Sec. 80.46. (6) (i) The results of each survey shall be based upon the results of the analysis of each sample collected during the course of the survey, unless the sample violates the applicable per-gallon maximum or minimum standards for the parameter being evaluated plus any enforcement tolerance that applies to the parameter (e.g., a sample that violates the benzene per-gallon maximum plus any benzene enforcement tolerance but meets other per-gallon maximum and minimum standards would be excluded from the benzene survey, but would be included in the surveys for parameters other than benzene). (ii) Any sample from a survey that violates any standard under Sec. 80.41, or that constitutes evidence of the violation of any prohibition or requirement under this subpart D, may be used by the Administrator in an enforcement action for such violation. (7) Each laboratory at which

samples in a survey are analyzed shall participate in a correlation program with EPA to ensure the validity of analysis results.

(8) (i) The results of each simple model VOC survey shall be determined as follows:

(A) For each simple model sample from the survey, the VOC emissions reduction percentage shall be determined based upon the tested values for RVP and oxygen for that sample as applied to the VOC emissions reduction equation at Sec. 80.42(a)(1) for VOC-Control Region 1 and Sec. 80.42(a)(2) for VOC-Control Region 2; (B) The VOC emissions reduction survey standard applicable to each covered area shall be calculated by using the VOC emissions equation at Sec. 80.42(a)(1) with RVP=7.2 and OXCON=2.0 for covered areas located in VOC-Control Region 1 and using the VOC emissions equation at Sec. 80.42(a)(2) with RVP=8.1 and OXCON=2.0 for covered areas located in VOC-Control Region 2; and

(C) The covered area shall have failed the simple model VOC survey if the VOC emissions reduction average of all survey samples is less than VOC emissions reduction survey standard calculated under paragraph (c)(8)(i)(B) of this section.

(ii) The results of each complex model VOC emissions reduction survey shall be determined as follows: (A) For each complex model sample from the survey, the VOC emissions reduction percentage shall be determined based upon the tested parameter values for that sample and the appropriate methodology for calculating VOC emissions reduction at Sec. 80.47; and (B) The covered area shall have failed the complex model VOC survey if the VOC emissions reduction percentage average of all survey samples is less than the applicable per-gallon standard for VOC emissions reduction.

(9) (i) The results of each simple model toxics emissions reduction survey series conducted in any covered area shall be determined as follows:

(A) For each simple model sample from the survey series, the toxics emissions reduction percentage shall be determined based upon the tested parameter values for that sample and the appropriate methodology for calculating toxics emissions performance reduction at Sec. 80.42.

(B) The annual average of the toxics emissions reduction percentages for all samples from a survey series shall be calculated according to the following formula:

<GRAPHIC><TIF11>TR16FE94.011

where

AATER = the annual average toxics emissions reduction TER<INF>1,i = the toxics emissions reduction for sample i of gasoline collected during the high ozone season TER<INF>2,i = the toxics emissions reduction for sample i of gasoline collected outside the high ozone season n<INF>1 = the number of samples collected during the high ozone season n<INF>2 = the number of samples collected outside the high ozone season

0(C) The covered area shall have failed the simple model toxics survey series if the annual average toxics emissions reduction is less than the simple model per-gallon standard for toxics emissions reduction.

(ii) The results of each complex model toxics emissions reduction survey series conducted in any covered area shall be determined as follows:

(A) For each complex model sample from the survey series, the toxics emissions reduction percentage shall be determined based upon the tested parameter values for that sample and the appropriate methodology for calculating toxics emissions reduction at Sec. 80.47; (B) The annual average of the toxics emissions reduction percentages for all samples from a survey series shall be calculated according to the formula specified in paragraph (c)(8)(i)(B) of this section; and

(C) The covered area shall have failed the complex model toxics survey series if the annual

average toxics emissions reduction is less than the applicable per-gallon complex model standard for toxics emissions reduction.

(10) The results of each NO<INF>X emissions reduction survey and survey series shall be determined as follows: (i) For each sample from the survey and survey series, the NO<INF>X emissions reduction percentage shall be determined based upon the tested parameter values for that sample and the appropriate methodology for calculating NO<INF>X emissions reduction at Sec. 80.47; and (ii) The covered area shall have failed the NO<INF>X survey or survey series if the NO<INF>X emissions reduction percentage average for all survey samples is less than the applicable Phase I or Phase II complex model per-gallon standard for NO<INF>X emissions reduction. (11) For any benzene content survey series conducted in any covered area the average benzene content for all samples from the survey series shall be calculated. If this annual average is greater than 1.000 percent by volume, the covered area shall have failed a benzene survey series.

(12) For any oxygen content survey series conducted in any covered area the average oxygen content for all samples from the survey series shall be calculated. If this annual average is less than 2.00 percent by weight, the covered area shall have failed an oxygen survey series. Each survey program shall:

(i) Be planned and conducted by a person who is independent of the refiner or importer (the surveyor). In order to be considered independent:

(A) The surveyor shall not be an employee of any refiner or importer;

(B) The surveyor shall be free from any obligation to or interest in any refiner or importer; and

(C) The refiner or importer shall be free from any obligation to or interest in the surveyor; and

(ii) Include procedures for selecting sample collection locations, numbers of samples, and

gasoline compositions which will result in: (A) Simple model surveys representing all gasoline certified using the simple model being dispensed at retail outlets within the covered area during the period of the survey; and (B) Complex model surveys representing all gasoline certified using the complex model being dispensed at retail outlets within the covered area during the period of the survey; and (iii) Include procedures such that the number of samples included in each survey assures that:

(A) In the case of simple model surveys, the average levels of oxygen, benzene, RVP, and aromatic hydrocarbons are determined with a 95% confidence level, with error of less than 0.1 psi for RVP, 0.05% for benzene (by volume), and 0.1% for oxygen (by weight); and (B) In the case of complex model surveys, the average levels of oxygen, benzene, RVP, aromatic hydrocarbons, olefins, T-50, T-90, and sulfur are determined with a 95% confidence level, with error of less than 0.1 psi for RVP, 0.05% for benzene (by volume), 0.1% for oxygen (by weight), 0.5% for aromatic hydrocarbons (by volume), 0.5% for olefins (by volume), 5 deg.F. for T-50 and T-90, and 10 ppm for sulfur; and

(iv) Require that the surveyor shall: (A) Not inform anyone, in advance, of the date or location for the conduct of any survey;

(B) Upon request by EPA made within thirty days following the submission of the report of a survey, provide a duplicate of any gasoline sample taken during that survey to EPA at a location to be specified by EPA each sample to be identified by the name and address of the facility where collected, the date of collection, and the classification of the sample as simple model or complex model; and (C) At any time permit any representative of EPA to monitor the conduct of the survey, including sample collection, transportation, storage, and analysis; and

(v) Require the surveyor to submit to EPA a report of each survey, within thirty days

following completion of the survey, such report to include the following information:

(A) The identification of the person who conducted the survey; (B) An attestation by an officer of the surveyor company that the survey was conducted in accordance with the survey plan and that the survey results are accurate;

(C) If the survey was conducted for one refiner or importer, the identification of that party;

(D) The identification of the covered area surveyed; (E) The dates on which the survey was conducted; (F) The address of each facility at which a gasoline sample was collected, the date of collection, and the classification of the sample as simple model or complex model;

(G) The results of the analyses of simple model samples for oxygenate type and oxygen weight percent, benzene content, aromatic hydrocarbon content, and RVP, and the calculated toxics emission reduction percentage;

(H) The results of the analyses of complex model samples for oxygenate type and oxygen weight percent, benzene, aromatic hydrocarbon, and olefin content, E-200, E-300, and RVP, and the calculated VOC, NO<INF>X, and toxics emissions reduction percentages; (I) The name and address of each laboratory where gasoline samples were analyzed;

(J) A description of the methodology utilized to select the locations for sample collection and the numbers of samples collected; (K) For any samples which were excluded from the survey, a justification for such exclusion; and

(L) The average toxics emissions reduction percentage for simple model samples and the percentage for complex model samples, the average benzene and oxygen percentages, for each survey conducted during the period June 1 through September 15, the average VOC emissions reduction percentage for simple model samples and the percentage for complex model samples, and beginning on January 1, 2000, the average NO<INF>X emissions reduction percentage.

(14) Each survey shall be conducted at a time and in a covered area selected by EPA no earlier than two weeks before the date of the survey.

(15) The procedure for seeking EPA approval for a survey program plan shall be as follows:

(i) The survey program plan shall be submitted to the Administrator of EPA for EPA's approval no later than September 1 of the year preceding the year in which the surveys will be conducted; and (ii) Such submittal shall be signed by a responsible corporate officer of the refiner, importer, or oxygenate blender, or in the case of a comprehensive survey program plan, by an officer of the organization coordinating the survey program. (16) (i) No later than December 1 of the year preceding the year in which the surveys will be conducted, the contract with the surveyor to carry out the entire survey plan shall be in effect, and an amount of money necessary to carry out the entire survey plan shall be paid to the surveyor or placed into an escrow account with instructions to the escrow agent to pay the money over to the surveyor during the course of the conduct of the survey plan.

(ii) No later than December 15 of the year preceding the year in which the surveys will be conducted, the Administrator of EPA shall be given a copy of the contract with the surveyor, proof that the money necessary to carry out the plan has either been paid to the surveyor or placed into an escrow account, and if placed into an escrow account, a copy of the escrow agreement.

Sec. 80.69 Requirements for downstream oxygenate blending.

The requirements of this section apply to all reformulated gasoline blendstock for oxygenate blending, or RBOB, to which oxygenate is added at any oxygenate blending facility.

(a) Requirements for refiners and importers. For any RBOB produced or imported, the refiner or importer of the RBOB shall: (1) Produce or import the RBOB such that, when blended with

a specified type and percentage of oxygenate, it meets the applicable standards for reformulated gasoline;

(2) In order to determine the properties of RBOB for purposes of calculating compliance with per-gallon or averaged standards, conduct tests on each batch of the RBOB by:

(i) Adding the specified type and amount of oxygenate to a representative sample of the RBOB; and (ii) Determining the properties and characteristics of the resulting gasoline using the methodology specified in Sec. 80.65(e); (3) Carry out the independent analysis requirements specified in Sec. 80.65(f);

(4) Determine properties of the RBOB which are sufficient to allow parties downstream from the refinery or import facility to establish, through sampling and testing, if the RBOB has been altered or contaminated such that it will not meet the applicable reformulated gasoline standards subsequent to the addition of the specified type and amount of oxygenate;

(5) Transfer ownership of the RBOB only to an oxygenate blender who is registered with EPA as such, or to an intermediate owner with the restriction that it only be transferred to a registered oxygenate blender;

(6) Have a contract with each oxygenate blender who receives any RBOB produced or imported by the refiner or importer that requires the oxygenate blender, or, in the case of a contract with an intermediate owner, that requires the intermediate owner to require the oxygenate blender to:

(i) Comply with blender procedures that are specified by the contract and are calculated to assure blending with the proper type and amount of oxygenate;

(ii) Allow the refiner or importer to conduct quality assurance sampling and testing of the reformulated gasoline produced by the oxygenate blender;

(iii) Stop selling any gasoline found to not comply with the standards under which the RBOB

was produced or imported; and (iv) Carry out the quality assurance sampling and testing that this section requires the oxygenate blender to conduct; (7) Conduct a quality assurance sampling and testing program to be carried out at the facilities of each oxygenate blender who blends any RBOB produced or imported by the refiner or importer with any oxygenate, to determine whether the reformulated gasoline which has been produced through blending complies with the applicable standards, using the methodology specified in Sec. 80.46 for this determination. (i) The sampling and testing program shall be conducted as follows: (A) All samples shall be collected subsequent to the addition of oxygenate, and either:

(1) Prior combining the resulting gasoline with any other gasoline; or

(2) In the case of truck splash blending, subsequent to the delivery of the gasoline to a retail outlet or wholesale purchaserconsumer facility provided that the three most recent deliveries to the retail outlet or wholesale purchaser facility were of gasoline produced using that refiner's or importer's RBOB, and provided that any discrepancy found through the retail outlet or wholesale purchaser facility sampling is followed-up with measures reasonably designed to discover the cause of the discrepancy; and (B) Sampling and testing shall be at one of the following rates: (1) In the case of RBOB which is blended with oxygenate in a gasoline storage tank, a rate of not less than one sample for every 400,000 barrels of RBOB produced or imported by that refiner or importer that is blended by that blender, or one sample every month, whichever is more frequent; or

(2) In the case of RBOB which is blended with oxygenate in gasoline delivery trucks through the use of computer-controlled in-line blending equipment, a rate of not less than one sample for every 200,000 barrels of RBOB produced or imported by that refiner or importer that is blended by that blender, or one sample every three months, whichever is more frequent; or

(3) In the case of RBOB which is blended with oxygenate in gasoline delivery trucks without the use of computer-controlled in-line blending equipment, a rate of not less than one sample for each 50,000 barrels of RBOB produced or imported by that refiner or importer which is blended, or one sample per month, whichever is more frequent; (ii) In the event the test results for any sample indicate the gasoline does not comply with applicable standards (within the ranges specified in Sec. 80.70(b)(2)(i)), the refiner or importer shall: (A) Immediately take steps to stop the sale of the gasoline that was sampled;

(B) Take steps which are reasonably calculated to determine the cause of the noncompliance and to prevent future instances of noncompliance;

(C) Increase the rate of sampling and testing to one of the following rates:

(1) In the case of RBOB which is blended with oxygenate in a gasoline storage tank, a rate of not less than one sample for every 200,000 barrels of RBOB produced or imported by that refiner or importer that is blended by that blender, or one sample every two weeks, whichever is more frequent; or

(2) In the case of RBOB which is blended with oxygenate in gasoline delivery trucks through the use of computer-controlled in-line blending equipment, a rate of not less than one sample for every 100,000 barrels of RBOB produced or imported by that refiner or importer that is blended by that blender, or one sample every two months, whichever is more frequent; or

(3) In the case of RBOB which is blended with oxygenate in gasoline delivery trucks without the use of computer-controlled in-line blending equipment, a rate of not less than one sample for each 25,000 barrels of RBOB produced or imported by that refiner or importer which is blended, or one sample every two weeks, whichever is more frequent; (D) Continue the increased frequency of sampling and testing until the results of ten consecutive samples and tests indicate

the gasoline complies with applicable standards, at which time the sampling and testing may be conducted at the original frequency; (iii) This quality assurance program is in addition to any quality assurance requirements carried out by other parties; (8) A refiner or importer of RBOB may, in lieu of the contractual and quality assurance requirements specified in paragraphs (a) (6) and (7) of this section, base its compliance calculations on the following assumptions:

(i) In the case of RBOB designated for any-oxygenate, assume that ethanol will be added;

(ii) In the case of RBOB designated for ether-only, assume that MTBE will be added; and

(iii) In the case of any-oxygenate and ether-only designated RBOB, assume that the volume of oxygenate added will be such that the resulting reformulated gasoline will have an oxygen content of 2.0 weight percent;

(9) Any refiner or importer who does not meet the contractual and quality assurance requirements specified in paragraphs (a) (6) and (7) of this section, and who does not designate its RBOB as ether-only or any-oxygenate, shall base its compliance calculations on the assumption that 4.0 volume percent ethanol is added to the RBOB; and (10) Specify in the product transfer documentation for the RBOB each oxygenate type or types and amount or range of amounts which is consistent with the designation of the RBOB as any-oxygenate, or etheronly, and which, if blended with the RBOB will result in reformulated gasoline which:

(i) Has VOC, toxics, or NO<INF>X emissions reduction percentages which are no lower than the percentages that formed the basis for the refiner's or importer's compliance determination for these parameters; (ii) Has a benzene content and RVP level which are no higher than the values for these characteristics that formed the basis for the refiner's or importer's compliance determinations for these parameters; and

(iii) Will not cause the reformulated gasoline to violate any standard specified in Sec. 80.41.

(b) Requirements for oxygenate blenders. For all RBOB received by any oxygenate blender, the oxygenate blender shall: (1) Add oxygenate of the type(s) and amount (or within the range of amounts) specified in the product transfer documents for the RBOB; (2) Designate each batch of the resulting reformulated gasoline as meeting the oxygen standard per-gallon or on average; (3) Meet the standard requirements specified in Sec. 80.65(c) and Sec. 80.67(e), the record keeping requirements specified in Sec. 80.74, and the reporting requirements specified in Sec. 80.75; and (4) In the case of each batch of reformulated gasoline which is designated for compliance with the oxygen standard on average: (i) Determine the volume and the weight percent oxygen of the batch using the testing methodology specified in Sec. 80.46; (ii) Assign a number to the batch (the ``batch number''), beginning with the number one for the first batch produced each calendar year and each subsequent batch during the calendar year being assigned the next sequential number, and such numbers to be preceded by the oxygenate blender's registration number, the facility number, and the second two digits of the year in which the batch was produced (e.g., 4321-4321-95- 001, 4321-4321-95-002, etc.); and

(iii) Meet the compliance audit requirements specified in Sec. 80.65(h).

(c) Additional requirements for terminal storage tank blending. Any oxygenate blender who produces reformulated gasoline by blending any oxygenate with any RBOB in any gasoline storage tank, other than a truck used for delivering gasoline to retail outlets or wholesale purchaser-consumer facilities, shall, for each batch of reformulated gasoline so produced determine the oxygen content and volume of this gasoline prior to the gasoline leaving the oxygenate blending facility, using the methodology specified in Sec. 80.46. (d) Additional requirements for distributors dispensing RBOB into trucks for blending. Any distributor who dispenses any RBOB into any truck which delivers gasoline to retail outlets or wholesale

purchaserconsumer facilities, shall for such RBOB so dispensed: (1) Transfer the RBOB only to an oxygenate blender who has registered with the Administrator of EPA as such; (2) Transfer any RBOB designated as ether-only RBOB only if the distributor has a reasonable basis for knowing the oxygenate blender will blend an oxygenate other than ethanol with the RBOB; and (3) Obtain from the oxygenate blender the oxygenate blender's EPA registration number.

(e) Additional requirements for oxygenate blenders who blend oxygenate in trucks. Any oxygenate blender who obtains any RBOB in any gasoline delivery truck shall:

(1) On each occasion it obtains RBOB from a distributor, supply the distributor with the oxygenate blender's EPA registration number; (2) Conduct a quality assurance sampling and testing program to determine whether the proper type and amount of oxygenate is added to RBOB. The program shall be conducted as follows: (i) All samples shall be collected subsequent to the addition of oxygenate, and either:

(A) Prior combining the resulting gasoline with any other gasoline; or

(B) Subsequent to the delivery of the gasoline to a retail outlet or wholesale purchaser-consumer facility provided that the three most recent deliveries to the retail outlet or wholesale purchaser facility were of gasoline that was produced by that oxygenate blender and that had the same oxygenate requirements, and provided that any discrepancy in oxygenate type or amount found through the retail outlet or wholesale purchaser facility sampling is followed-up with measures reasonably designed to discover the cause of the discrepancy; (ii) Sampling and testing shall be at one of the following rates: (A) In the case computer-controlled in-line blending is used, a rate of not less than one sample per each five hundred occasions RBOB and oxygenate are loaded into a truck by that oxygenate blender, or one sample every three months, whichever is more frequent; or (B) In the case computer-controlled in-line blending is not

used, a rate of not less than one sample per each one hundred occasions RBOB and oxygenate are blended in a truck by that oxygenate blender, or one sample per month, whichever is more frequent; (iii) Sampling and testing shall be of the gasoline produced through one of the RBOB-oxygenate blends produced by that oxygenate blender;

(iv) Samples shall be analyzed for oxygenate type and oxygen content using the testing methodology specified at Sec. 80.46; and (v) In the event the testing results for any sample indicate the gasoline does not contain the specified type and amount of oxygenate (within the ranges specified in Sec. 80.70(b)(2)(i)): (A) Immediately stop selling (or where possible, to stop any transferee of the gasoline from selling) the gasoline which was sampled;

(B) Take steps to determine the cause of the noncompliance; (C) Increase the rate of sampling and testing to one of the following rates:

(1) In the case computer-controlled in-line blending is used, a rate of not less than one sample per each two hundred and fifty occasions RBOB and oxygenate are loaded into a truck by that oxygenate blender, or one sample every six weeks, whichever is more frequent; or (2) In the case computer-controlled in-line blending is not used, a rate of not less than one sample per each fifty occasions RBOB and oxygenate are blended in a truck by that oxygenate blender, or one sample every two weeks, whichever is more frequent; and (D) This increased frequency shall continue until the results of ten consecutive samples and tests indicate the gasoline complies with applicable standards, at which time the frequency may revert to the original frequency.

(f) Oxygenate blending with OPRG. Notwithstanding the requirements for and restrictions on oxygenate blending provided in this section, any oxygenate blender may blend oxygenate with reformulated gasoline that is designated as OPRG, without meeting the record keeping and reporting requirements that otherwise apply to oxygenate blenders, provided that the

reformulated gasoline so produced is: (1) Used in an oxygenated fuels program control area during an oxygenated fuels program control period; and (2) ``Substantially similar'' under section 211(f)(1) of the Clean Air Act, or is permitted under a waiver granted by the Administrator under the authority of section 211(f)(4) of the Clean Air Act.

Sec. 80.70 Covered areas.

For purposes of subparts D, E, and F of this part, the covered areas are as follows:

(a) The Los Angeles-Anaheim-Riverside, California, area, comprised of:

(1) Los Angeles County;

(2) Orange County;

(3) Ventura County;

(4) That portion of San Bernadino County that lies south of latitude 35 degrees, 10 minutes north and west of longitude 115 degrees, 45 minutes west; and

(5) That portion of Riverside County, which lies to the west of a line described as follows:

(i) Beginning at the northeast corner of Section 4, Township 2 South, Range 5 East, a point on the boundary line common to Riverside and San Bernadino Counties;

(ii) Then southerly along section lines to the centerline of the Colorado River Aqueduct;

(iii) Then southeasterly along the centerline of said Colorado River Aqueduct to the southerly line of Section 36, Township 3 South, Range 7 East;

(iv) Then easterly along the township line to the northeast corner of Section 6, Township 4 South, Range 9 East; (v) Then southerly along the easterly line of Section 6 to the southeast corner thereof;

(vi) Then easterly along section lines to the northeast corner of Section 10, Township 4 South, Range 9 East; (vii) Then southerly along section lines to the southeast corner of Section 15,

Township 4 South, Range 9 East; (viii) Then easterly along the section lines to the northeast corner of Section 21, Township 4 South, Range 10 East; (ix) Then southerly along the easterly line of Section 21 to the southeast corner thereof;

(x) Then easterly along the northerly line of Section 27 to the northeast corner thereof;

(xi) Then southerly along section lines to the southeast corner of Section 34, Township 4 South, Range 10 East; (xii) Then easterly along the township line to the northeast corner of Section 2, Township 5 South, Range 10 East; (xiii) Then southerly along the easterly line of Section 2, to the southeast corner thereof;

(xiv) Then easterly along the northerly line of Section 12 to the northeast corner thereof;

(xv) Then southerly along the range line to the southwest corner of Section 18, Township 5 South, Range 11 East; (xvi) Then easterly along section lines to the northeast corner of Section 24, Township 5 South, Range 11 East; (xvii) Then southerly along the range line to the southeast corner of Section 36, Township 8 South, Range 11 East, a point on the boundary line common to Riverside and San Diego Counties. (b) San Diego County, California.

(c) The Greater Connecticut area, comprised of: (1) The following Connecticut counties:

(i) Hartford;

(ii) Middlesex;

(iii) New Haven;

(iv) New London;

(v) Tolland; and

(vi) Windham; and

(2) Portions of certain Connecticut counties, described as follows: (i) In Fairfield County, the City of Shelton; and (ii) In Litchfield County, all cities and townships except the towns of

Bridgewater and New Milford.

(d) The New York-Northern New Jersey-Long Island-Connecticut area, comprised of:

(1) Portions of certain Connecticut counties, described as follows: (i) In Fairfield County, all cities and townships except Shelton City; and

(ii) In Litchfield County, the towns of Bridgewater and New Milford;

(2) The following New Jersey counties: (i) Bergen;

(ii) Essex;

(iii) Hudson;

(iv) Hunterdon;

(v) Middlesex;

(vi) Monmouth;

(vii) Morris;

(viii) Ocean;

(ix) Passaic;

(x) Somerset;

(xi) Sussex; and

(xii) Union; and

(3) The following New York counties: (i) Bronx;

(ii) Kings;

(iii) Nassau;

(iv) New York (Manhattan);

(v) Queens;

(vi) Richmond;

(vii) Rockland;

(viii) Suffolk; and

(ix) Westchester.

(e) The Philadelphia-Wilmington-Trenton area, comprised of: (1) The following Delaware counties: (i) New Castle; and

(ii) Kent; and

(2) Cecil County, Maryland; and

(3) The following New Jersey counties: (i) Burlington;

(ii) Camden;

(iii) Cumberland;

(iv) Gloucester;

(v) Mercer; and

(vi) Salem; and

(4) The following Pennsylvania counties: (i) Bucks;

(ii) Chester;

(iii) Delaware;

(iv) Montgomery; and

(v) Philadelphia.

(f) The Chicago-Gary-Lake County, Illinois-Indiana-Wisconsin area, comprised of:

(1) The following Illinois counties: (i) Cook;

(ii) Du Page;

(iii) Kane;

(iv) Lake;

(v) McHenry; and

(vi) Will; and

(2) Portions of certain Illinois counties, described as follows: (i) In Grundy County, the townships of Aux Sable and Goose Lake; and

(ii) In Kendall County, Oswego township; and (3) The following Indiana counties: (i) Lake; and

(ii) Porter.

(g) The Baltimore, Maryland area, comprised of: (1) The following Maryland counties: (i) Anne Arundel;

(ii) Baltimore;

(iii) Carroll;

(iv) Harford; and

(v) Howard; and

(2) The City of Baltimore.

(h) The Houston-Galveston-Brazoria, Texas area, comprised of the following Texas counties:

(1) Brazoria;

(2) Fort Bend;

(3) Galveston;

(4) Harris;

(5) Liberty;

(6) Montgomery;

(7) Waller; and

(8) Chambers.

(i) The Milwaukee-Racine, Wisconsin area, comprised of the following Wisconsin counties:

(1) Kenosha;

(2) Milwaukee;

(3) Ozaukee;

(4) Racine;

(5) Washington; and

(6) Waukesha.

(j) The ozone nonattainment areas listed in this paragraph (j) are covered areas beginning on January 1, 1995. The geographic extent of each covered area listed in this paragraph (j) shall be the nonattainment area boundaries as specified in 40 CFR Part 81, subpart C:

(1) Sussex County, Delaware;

(2) District of Columbia portion of the Washington ozone nonattainment area;

(3) The following Kentucky counties: (i) Boone;

(ii) Campbell;

(iii) Jefferson; and

(iv) Kenton;

(4) Portions of the following Kentucky counties: (i) Bullitt; and

(ii) Oldham;

(5) The following Maine counties:

(i) Androscoggin;

(ii) Cumberland;

(iii) Kennebec;

(iv) Knox;

(v) Lincoln;

(vi) Sagadahoc;

(vii) York;

(viii) Hancock; and

(ix) Waldo;

(6) The following Maryland counties: (i) Calvert;

(ii) Charles;

(iii) Frederick;

(iv) Montgomery;

(v) Prince Georges;

(vi) Queen Anne's; and

(vii) Kent;

(7) The entire State of Massachusetts; (8) The following New Hampshire counties: (i) Strafford;

(ii) Merrimack;

(iii) Hillsborough; and

(iv) Rockingham;

(9) The following New Jersey counties: (i) Atlantic;

(ii) Cape May; and

(iii) Warren;

(10) The following New York counties: (i) Albany;

(ii) Dutchess;

(iii) Erie;

(iv) Essex;

(v) Greene;

(vi) Jefferson;

(vii) Montgomery;

(viii) Niagara;

(ix) Rensselaer;

(x) Saratoga; and

(xi) Schenectady;

(11) The following Pennsylvania counties: (i) Alleheny;

(ii) Armstrong;

(iii) Beaver;

(iv) Berks;

(v) Butler;

(vi) Fayette;

(vii) Washington;

(viii) Westmoreland;

(ix) Adams;

(x) Blair;

(xi) Cambria;

(xii) Carbon;

(xiii) Columbia;

(xiv) Cumberland;

(xv) Dauphin;

(xvi) Erie;

(xvii) Lackawanna;

(xviii) Lancaster;

(xix) Lebanon;

(xx) Lehigh;

(xxi) Luzerne;

(xxii) Mercer;

(xxiii) Monroe;

(xxiv) Northampton;

(xxv) Perry;

(xxvi) Somerset;

(xxvii) Wyoming; and

(xxviii) York;

(12) The entire State of Rhode Island; (13) The following Texas counties: (i) Collin;

(ii) Dallas;

(iii) Denton; and

(iv) Tarrant;

(14) The following Virginia areas: (i) Alexandria;

(ii) Arlington County;

(iii) Fairfax;

(iv) Fairfax County;

(v) Falls Church;

(vi) Loudoun County;

(vii) Manassas;

(viii) Manassas Park;

(ix) Prince William County;

(x) Stafford County;

(xi) Charles City County;

(xii) Chesterfield County;

(xiii) Colonial Heights;

(xiv) Hanover County;

(xv) Henrico County;

(xvi) Hopewell;

(xvii) Richmond County;

(xviii) Chesapeake;

(xix) Hampton;

(xx) James City County;

(xxi) Newport News;

(xxii) Norfolk;

(xxiii) Poquoson;

(xxiv) Portsmouth;

(xxv) Suffolk;

(xxvi) Virginia Beach;

(xxvii) Williamsburg; and

(xxviii) York County; and

(15) Portions of Smyth County of Virginia. (k) Any other area classified under 40 CFR part 81, subpart C as a marginal, moderate, serious, or severe ozone nonattainment area may be

included on petition of the governor of the state in which the area is located. Effective one year after an area has been reclassified as a severe ozone nonattainment area, such severe area shall also be a covered area for purposes of this subpart D.

Sec. 80.71 Descriptions of VOC-control regions.

(a) Reformulated gasoline covered areas which are located in the following states are included in VOC-Control Region 1:

Alabama

Arizona

Arkansas

California

Colorado

District of Columbia

Florida

Georgia

Kansas

Louisiana

Maryland

Mississippi

Missouri

Nevada

New Mexico

North Carolina

Oklahoma

Oregon

South Carolina

Tennessee

Texas

Utah

Virginia

(b) Reformulated gasoline covered areas which are located in the following states are included in VOC-Control Region 2:

Connecticut

Delaware

Idaho

Illinois

Indiana

Iowa

Kentucky

Maine

Massachusetts

Michigan

Minnesota

Montana

Nebraska

New Hampshire

New Jersey

New York

North Dakota

Ohio

Pennsylvania

Rhode Island

South Dakota

Vermont

Washington

West Virginia

Wisconsin

Wyoming

(c) Reformulated gasoline covered areas which are partially in VOC Control Region 1 and partially in VOC Control Region 2 shall be included in VOC Control Region 1, except in the case of the Philadelphia-Wilmington-Trenton CMSA which shall be included in VOC Control Region 2.

Sec. 80.72 [Reserved]

Sec. 80.73 Inability to produce conforming gasoline in extraordinary circumstances.

In appropriate extreme and unusual circumstances (e.g., natural disaster or Act of God) which are clearly outside the control of the refiner, importer, or oxygenate blender and which could not have been avoided by the exercise of prudence, diligence, and due care, EPA may permit a refiner, importer, or oxygenate blender, for a brief period, to distribute gasoline which does not meet the requirements for reformulated gasoline, if:

(a) It is in the public interest to do so (e.g., distribution of the nonconforming gasoline is

necessary to meet projected shortfalls which cannot otherwise be compensated for); (b) The refiner, importer, or oxygenate blender exercised prudent planning and was not able to avoid the violation and has taken all reasonable steps to minimize the extent of the nonconformity; (c) The refiner, importer, or oxygenate blender can show how the requirements for reformulated gasoline will be expeditiously achieved; (d) The refiner, importer, or oxygenate blender agrees to make up air quality detriment associated with the nonconforming gasoline, where practicable; and

(e) The refiner, importer, or oxygenate blender pays to the U.S. Treasury an amount equal to the economic benefit of the nonconformity minus the amount expended, pursuant to paragraph (d) of this section, in making up the air quality detriment.

Sec. 80.74 Record keeping requirements.

All parties in the gasoline distribution network, as described in this section, shall maintain records containing the information as required in this section. These records shall be retained for a period of five years from the date of creation, and shall be delivered to the Administrator of EPA or to the Administrator's authorized representative upon request.

(a) All regulated parties. Any refiner, importer, oxygenate blender, carrier, distributor, reseller, retailer, or wholesalepurchaser who sells, offers for sale, dispenses, supplies, offers for supply, stores, transports, or causes the transportation of any reformulated gasoline or RBOB, shall maintain records containing the following information:

(1) The product transfer documentation for all reformulated gasoline or RBOB for which the party is the transferor or transferee; and

(2) For any sampling and testing on RBOB or reformulated gasoline: (i) The location, date, time, and storage tank or truck identification for each sample collected; (ii) The identification of the person who collected the sample and the person who performed the testing;

(iii) The results of the tests; and (iv) The actions taken to stop the sale of any gasoline found not to be in compliance, and the actions taken to identify the cause of any noncompliance and prevent future instances of noncompliance. (b) Refiners and importers. In addition to other requirements of this section, any refiner and importer shall, for all reformulated gasoline and RBOB produced or imported, maintain records containing the following information:

(1) Results of the tests to determine reformulated gasoline properties and characteristics specified in Sec. 80.65; (2) Results of the tests for the presence of the marker specified in Sec. 80.82;

(3) The volume of gasoline associated with each of the above test results using the method normally employed at the refinery or import facility for this purpose;

(4) In the case of RBOB:

(i) The results of tests to ensure that, following blending, RBOB meets applicable standards; and

(ii) Each contract with each oxygenate blender to whom the refiner or importer transfers RBOB; or

(iii) Compliance calculations described in Sec. 80.69(a)(8) based on an assumed addition of oxygenate;

(5) In the case of any refinery or importer subject to the simple model standards, the calculations used to determine the 1990 baseline levels of sulfur, T-90, and olefins, and the calculations used to determine compliance with the standards for these parameters; and (6) In the case of any refinery or importer subject to the complex model standards before January 1, 1998, the calculations used to determine the baseline levels of VOC, toxics, and NO<INF>x emissions performance.

(c) Refiners, importers and oxygenate blenders of averaged gasoline. In addition to other requirements of this section, any refiner, importer, and oxygenate blender who produces or imports any reformulated gasoline for which compliance with one or more applicable standard is

determined on average shall maintain records containing the following information:

(1) The calculations used to determine compliance with the relevant standards on average, for each averaging period and for each quantity of gasoline for which standards must be separately achieved; and (2) For any credits bought, sold, traded or transferred pursuant to Sec. 80.67(h), the dates of the transactions, the names and EPA registration numbers of the parties involved, and the number(s) and type(s) of credits transferred.

(d) Oxygenate blenders. In addition to other requirements of this section, any oxygenate blender who blends any oxygenate with any RBOB shall, for each occasion such terminal storage tank blending occurs, maintain records containing the following information: (i) The date, time, location, and identification of the blending tank or truck in which the blending occurred; (ii) The volume and oxygenate requirements of the RBOB to which oxygenate was added; and

(iii) The volume, type, and purity of the oxygenate which was added, and documents which show the source(s) of the oxygenate used. (e) Distributors who dispense RBOB into trucks. In addition to other requirements of this section, any distributor who dispenses any RBOB into a truck used for delivering gasoline to retail outlets shall, for each occasion RBOB is dispensed into such a truck, obtain records identifying:

(1) The name and EPA registration number of the oxygenate blender that received the RBOB; and

(2) The volume and oxygenate requirements of the RBOB dispensed. (f) Conventional gasoline requirement. In addition to other requirements of this section, any refiner and importer shall, for all conventional gasoline produced or imported, maintain records showing the blending of the marker required under Sec. 80.82 into conventional gasoline, and the results of the tests showing the concentration of this marker subsequent to its addition. (g) Retailers before

January 1, 1998. Prior to January 1, 1998 any retailer that sells or offers for sale any reformulated gasoline shall maintain at each retail outlet the product transfer documentation for the most recent three deliveries to the retail outlet of each grade of reformulated gasoline sold or offered for sale at the retail outlet, and shall make such documentation available to any person conducting any gasoline compliance survey pursuant to Sec. 80.68.

Sec. 80.75 Reporting requirements.

Any refiner, importer, and oxygenate blender shall report as specified in this section, and shall report such other information as the Administrator may require.

(a) Quarterly reports for reformulated gasoline. Any refiner or importer that produces or imports any reformulated gasoline or RBOB, and any oxygenate blender that produces reformulated gasoline meeting the oxygen standard on average, shall submit quarterly reports to the Administrator for each refinery or oxygenate blending facility at which such reformulated gasoline or RBOB was produced and for all such reformulated gasoline or RBOB imported by each importer. (1) The quarterly reports shall be for all such reformulated gasoline or RBOB produced or imported during the following time periods:

(i) The first quarterly report shall include information for reformulated gasoline or RBOB produced or imported from January 1 through March 31, and shall be submitted by May 31 of each year beginning in 1995;

(ii) The second quarterly report shall include information for reformulated gasoline or RBOB produced or imported from April 1 through June 30, and shall be submitted by August 31 of each year beginning in 1995;

(iii) The third quarterly report shall include information for reformulated gasoline or RBOB produced or imported from July 1 through September 30, and shall be submitted by November

30 of each year beginning in 1995; and

(iv) The fourth quarterly report shall include information for reformulated gasoline or RBOB produced or imported from October 1 through December 31, and shall be submitted by the last day of February of each year beginning in 1996.

(2) The following information shall be included in each quarterly report for each batch of reformulated gasoline or RBOB which is included under paragraph (a)(1) of this section: (i) The batch number;

(ii) The date of production;

(iii) The volume of the batch;

(iv) The grade of gasoline produced (i.e., premium, mid-grade, or regular);

(v) For any refiner or importer:

(A) Each designation of the gasoline, pursuant to Sec. 80.65; and (B) The properties, pursuant to Secs. 80.65 and 80.66; (vi) For any importer, the PADD in which the import facility is located; and

(vii) For any oxygenate blender, the oxygen content. (3) Information pertaining to gasoline produced or imported during 1994 shall be included in the first quarterly report in 1995. (b) RVP averaging reports. (1) Any refiner or importer that produced or imported any reformulated gasoline or RBOB under the simple model that was to meet RVP standards on average (``averaged reformulated gasoline'') shall submit to the Administrator, with the third quarterly report, a report for each refinery or importer for such averaged reformulated gasoline or RBOB produced or imported during the previous RVP averaging period. This information shall be reported separately for the following categories: (i) Gasoline or RBOB which is designated as VOC-controlled intended for areas in VOC-Control Region 1; and (ii) Gasoline or RBOB

which is designated as VOC-controlled intended for VOC-Control Region 2.

(2) The following information shall be reported: (i) The total volume of averaged reformulated gasoline or RBOB in gallons;

(ii) The compliance total value for RVP; and (iii) The actual total value for RVP. (c) VOC emissions performance averaging reports. (1) Any refiner or importer that produced or imported any reformulated gasoline or RBOB under the complex model that was to meet the VOC emissions performance standards on average (``averaged reformulated gasoline") shall submit to the Administrator, with the third quarterly report, a report for each refinery or importer for such averaged reformulated gasoline produced or imported during the previous VOC averaging period. This information shall be reported separately for the following categories: (i) Gasoline or RBOB which is designated as VOC-controlled intended for areas in VOC-Control Region 1; and (ii) Gasoline or RBOB which is designated as VOC-controlled intended for VOC-Control Region 2.

(2) The following information shall be reported: (i) The total volume of averaged reformulated gasoline or RBOB in gallons;

(ii) The compliance total value for VOC emissions performance; and (iii) The actual total value for VOC emissions performance. (d) Benzene content averaging reports. (1) Any refiner or importer that produced or imported any reformulated gasoline or RBOB that was to meet the benzene content standards on average (``averaged reformulated gasoline") shall submit to the Administrator, with the fourth quarterly report, a report for each refinery or importer for such averaged reformulated gasoline that was produced or imported during the previous toxics averaging period.

(2) The following information shall be reported: (i) The volume of averaged reformulated

gasoline or RBOB in gallons;

(ii) The compliance total content of benzene; (iii) The actual total content of benzene; (iv) The number of benzene credits generated as a result of actual total benzene being less than compliance total benzene; (v) The number of benzene credits required as a result of actual total benzene being greater than compliance total benzene; (vi) The number of benzene credits transferred to another refinery or importer; and

(vii) The number of benzene credits obtained from another refinery or importer.

(e) Toxics emissions performance averaging reports. (1) Any refiner or importer that produced or imported any reformulated gasoline or RBOB that was to meet the toxics emissions performance standards on average (``averaged reformulated gasoline") shall submit to the Administrator, with the fourth quarterly report, a report for each refinery or importer for such averaged reformulated gasoline that was produced or imported during the previous toxics averaging period. (2) The following information shall be reported: (i) The volume of averaged reformulated gasoline or RBOB in gallons;

(ii) The compliance value for toxics emissions performance; and (iii) The actual value for toxics emissions performance. (f) Oxygen averaging reports. (1) Any refiner, importer, or oxygenate blender that produced or imported any reformulated gasoline that was to meet the oxygen standards on average (``averaged reformulated gasoline") shall submit to the Administrator, with the fourth quarterly report, a report for each refinery and oxygenate blending facility at which such averaged reformulated gasoline was produced and for all such averaged reformulated gasoline imported by each importer during the previous oxygen averaging period. (2)(i) The following information shall be included in each report required by paragraph (f)(1) of this section: (A) The total volume of averaged RBOB in gallons; (B) The total volume of

averaged reformulated gasoline in gallons; (C) The compliance total content for oxygen; (D) The actual total content for oxygen; (E) The number of oxygen credits generated as a result of actual total oxygen being greater than compliance total oxygen; (F) The number of oxygen credits required as a result of actual total oxygen being less than compliance total oxygen; (G) The number of oxygen credits transferred to another refinery, importer, or oxygenate blending facility; and (H) The number of oxygen credits obtained from another refinery, importer, or oxygenate blending facility. (ii) The information required by paragraph (f)(2)(i) of this section shall be reported separately for the following categories: (A) For gasoline subject to the simple model standards: (1) Gasoline designated as VOC-controlled and non-oxygenated fuels program reformulated gasoline (OPRG);

(2) Gasoline which is designated as VOC-controlled and non-OPRG; (3) Gasoline which is designated as non-VOC-controlled and OPRG; and

(4) Gasoline which is designated as non-VOC-controlled and nonOPRG; and

(B) For gasoline subject to the Phase I or Phase II complex model standards:

(1) Gasoline which is designated as OPRG; and (2) Gasoline which is designated as non-OPRG. (iii) The results of the compliance calculations required in Sec. 80.67(f) shall also be included in each report required by paragraph (f)(1) of this section, for each of the following categories: (A) All reformulated gasoline;

(B) Gasoline which is designated as non-OPRG; and (C) For gasoline subject to the simple model standards, gasoline which is designated as VOC-controlled. (g) NO<INF>X emissions performance averaging reports. (1) Any refiner or importer that produced or imported any reformulated gasoline or RBOB that was to meet the NO<INF>X emissions performance standard on average (``averaged reformulated gasoline'') shall submit to the Administrator, with

the fourth quarterly report, a report for each refinery or importer for such averaged reformulated gasoline that was produced or imported during the previous NO<INF>X averaging period. (2) The following information shall be reported: (i) The volume of averaged reformulated gasoline or RBOB in gallons;

(ii) The compliance value for NO<INF>X emissions performance; and (iii) The actual value for NO<INF>X emissions performance. (3) The information required by paragraph (g)(2) of this section shall be reported separately for the following categories: (i) Gasoline and RBOB which is designated as VOC-controlled; and (ii) Gasoline and RBOB which is not designated as VOC-controlled. (h) Credit transfer reports. (1) As an additional part of the fourth quarterly report required by this section, any refiner, importer, and oxygenate blender shall, for each refinery, importer, or oxygenate blending facility, supply the following information for any oxygen or benzene credits that are transferred from or to another refinery, importer, or oxygenate blending facility: (i) The names, EPA-assigned registration numbers and facility identification numbers of the transferor and transferee of the credits; (ii) The number(s) and type(s) of credits that were transferred; and

(iii) The date(s) of transaction(s). (2) For purposes of this paragraph (h), oxygen credit transfers shall be reported separately for each of the following oxygen credit types:

(i) For gasoline subject to the simple model standards: (A) VOC controlled, oxygenated fuels program reformulated gasoline (OPRG) oxygen credits;

(B) VOC controlled, non-OPRG oxygen credits; (C) Non-VOC controlled, OPRG oxygen credits; and (D) Non-VOC controlled, non-OPRG oxygen credits; and (ii) For gasoline subject to the Phase I or Phase II complex model standards:

(A) OPRG oxygen credits; and

(B) Non-OPRG oxygen credits.

(i) Covered areas of gasoline use report. Any refiner or oxygenate blender that produced or imported any reformulated gasoline that was to meet any reformulated gasoline standard on average (``averaged reformulated gasoline") shall, for each refinery and oxygenate blending facility at which such averaged reformulated gasoline was produced submit to the Administrator, with the fourth quarterly report, a report that contains the identity of each covered area that was supplied with any averaged reformulated gasoline produced at each refinery or blended by each oxygenate blender during the previous year. (j) Additional reporting requirement for certain importers. In the case of any importer to whom different standards apply for gasoline imported at different facilities, by operation of Sec. 80.41(m)(2)(iii), such importer shall submit separate reports for gasoline imported into facilities subject to different standards. (k) Reporting requirements for early use of the complex model. Any refiner for any refinery, or any importer, that elects to be subject to complex model standards under Sec. 80.41(i)(1) shall report such election in writing to the Administrator no later than sixty days prior to the beginning of the calendar year during which such standards would apply. This report shall include the refinery's or importer's baseline values for VOC, NO<INF>X, and toxics emissions performance, in milligrams per mile.

(l) Reports for per-gallon compliance gasoline. In the case of reformulated gasoline or RBOB for which compliance with each of the standards set forth in Sec. 80.41 is achieved on a per-gallon basis, the refiner, importer, or oxygenate blender shall submit to the Administrator, by the last day of February of each year beginning in 1996, a report of the volume of each designated reformulated gasoline or RBOB produced or imported during the previous calendar year for which compliance is achieved on a per-gallon basis, and a statement that each gallon of

this reformulated gasoline or RBOB met the applicable standards.

(m) Reports of compliance audits. Any refiner, importer, and oxygenate blender shall cause to be submitted to the Administrator, by May 31 of each year, the report of the compliance audit required by Sec. 80.65(h).

(n) Report submission. The reports required by this section shall be:

(1) Submitted on forms and following procedures specified by the Administrator; and

(2) Signed and certified as correct by the owner or a responsible corporate officer of the refiner, importer, or oxygenate blender.

Sec. 80.76 Registration of refiners, importers or oxygenate blenders.

(a) Registration with the Administrator of EPA is required for any refiner and importer, and any oxygenate blender that produces any reformulated gasoline.

(b) Any person required to register shall do so by November 1, 1994, or not later than three months in advance of the first date that such person will produce or import reformulated gasoline or RBOB, or conventional gasoline or applicable blendstocks, whichever is later. (c) Registration shall be on forms prescribed by the Administrator, and shall include the following information: (1) The name, business address, contact name, and telephone number of the refiner, importer, or oxygenate blender; (2) The address and physical location where the documents which are required to be retained by Sec. 80.74 or 80.104 will be kept by the refiner, importer, or oxygenate blender; and (3) For each separate refinery and oxygenate blending facility: (i) The facility name, physical location, contact name, telephone number, type of facility, and whether the facility will produce reformulated gasoline, RBOB, conventional gasoline or applicable blendstocks;

(ii) The identity of each covered area which is supplied with any reformulated gasoline or

RBOB produced at the refinery or blending facility or imported by the importer; and (iii) The name, address, contact name and telephone number of the independent laboratory used to meet the independent analysis requirements of Sec. 80.65(f).

(d) EPA will supply a registration number to each refiner, importer, and oxygenate blender, and a facility registration number for each refinery and oxygenate blending facility that is identified, which shall be used in all reports to the Administrator. (e)(1) Any refiner, importer, or oxygenate blender shall submit updated registration information to the Administrator within thirty days of any occasion when the registration information previously supplied becomes incomplete or inaccurate; except that (2) EPA must be notified in writing of any change in designated independent laboratory at least thirty days in advance of such change.

Sec. 80.77 Product transfer documentation.

On each occasion when any person transfers custody or title to any reformulated gasoline or RBOB, other than when gasoline is sold or dispensed for use in motor vehicles at a retail outlet or wholesale purchaser-consumer facility, the transferor shall provide to the transferee documents which include the following information: (a) The name and address of the transferor; (b) The name and address of the transferee; (c) The volume of gasoline which is being transferred; (d) The location of the gasoline at the time of the transfer; (e) The date of the transfer;

(f) The proper identification of the gasoline as conventional or reformulated;

(g) In the case of reformulated gasoline or RBOB: (1) The proper identification as:

(i)(A) VOC-controlled for VOC-Control Region 1; or VOC-controlled for VOC-Control Region 2; or Not VOC-controlled; or (B) In the case of gasoline or RBOB that is VOC-controlled for VOCControl Region 1, the gasoline may be identified as suitable for use

either in VOC-Control Region 1 or VOC-Control Region 2; (ii) Oxygenated fuels program reformulated gasoline; or Not oxygenated fuels program reformulated gasoline; and (iii) Prior to January 1, 1998, certified under the simple model standards or certified under the complex model standards; and (2) The minimum and/or maximum standards with which the gasoline or RBOB conforms for:

(i) Benzene content;

(ii) Except for RBOB, oxygen content; (iii) In the case of gasoline subject to the simple model standards, RVP;

(iv) In the case of gasoline subject to the complex model standards:

(A) Prior to January 1, 1998, the VOC and NO<INF>X emissions performance minimums in milligrams per mile; and (B) Beginning on January 1, 1998, the VOC and NO<INF>x emissions performance reduction percentage minimums; (h) Prior to January 1, 1998, in the case of gasoline or RBOB subject to the complex model standards: (1) The name and EPA registration number of the refinery at which the gasoline was produced, or importer that imported the gasoline; and (2) Instructions that the gasoline or RBOB may not be combined with any other gasoline or RBOB that was produced at any other refinery or was imported by any other importer;

(i) In the case of reformulated gasoline blendstock for which oxygenate blending is intended:

(1) Identification of the product as RBOB and not reformulated gasoline;

(2) The designation of the RBOB as suitable for blending with: (A) Any-oxygenate;

(B) Ether-only; or

(C) Other specified oxygenate type(s) and amount(s); and (3) The oxygenate type(s) and amount(s) which the RBOB requires in order to meet the properties claimed by the refiner or

importer of the RBOB;

(4) Instructions that the RBOB may not be combined with any other RBOB except other RBOB having the same requirements for oxygenate type(s) and amount(s), or, prior to blending, with reformulated gasoline; and

(j) In the case of transferrers or transferees who are refiners, importers or oxygenate blenders, the EPA-assigned registration number of those persons.

Sec. 80.78 Controls and prohibitions on reformulated gasoline.

(a) Prohibited activities. (1) No person may manufacture and sell or distribute, offer for sale or distribution, dispense, supply, offer for supply, store, transport, or cause the transportation of any gasoline represented as reformulated and intended for sale or use in any covered area:

(i) Unless each gallon of such gasoline meets the applicable benzene maximum standard specified in Sec. 80.41; (ii) Unless each gallon of such gasoline meets the applicable oxygen content:

(A) Minimum standard specified in Sec. 80.41; and (B) In the case of gasoline subject to simple model standards, maximum standard specified in Sec. 80.41; (iii) Unless each gallon is properly designated as oxygenated fuels program reformulated gasoline, within any oxygenated gasoline program control areas during the oxygenated gasoline control period; (iv) Unless the product transfer documentation for such gasoline complies with the requirements in Sec. 80.77; and (v) During the period May 1 through September 15 for all persons except retailers and wholesale purchaser-consumers, and during the period June 1 through September 15 for all persons including retailers and wholesale purchaser-consumers:

(A) Unless each gallon of such gasoline is VOC-controlled for the proper VOC Control Region, except that gasoline designated for VOCControl Region 1 may be used in VOC-Control Region 2; (B) Unless each gallon of such gasoline that is subject to simple model standards

has an RVP which is below the applicable RVP maximum specified in Sec. 80.41;

(C) Unless each gallon of such gasoline that is subject to complex model standards has a VOC and NO<INF>x emissions reduction percentage which is above the applicable minimum specified in Sec. 80.41. (2) No refiner or importer may produce or import any gasoline represented as reformulated or RBOB, and intended for sale or use in any covered area:

(i) Unless such gasoline meets the definition of reformulated gasoline or RBOB; and

(ii) Unless the properties of such gasoline or RBOB correspond to the product transfer documents.

(3) No person may manufacture and sell or distribute, or offer for sale or distribution, dispense, supply, or offer for supply, store, transport or cause the transportation of gasoline represented as conventional which does not contain at least the minimum concentration of the conventional gasoline marker specified in Sec. 80.82. (4) Gasoline shall be presumed to be intended for sale or use in a covered area unless:

(i) Product transfer documentation as described in Sec. 80.77 accompanying such gasoline clearly indicates the gasoline is intended for sale and use only outside any covered area; or (ii) The gasoline is contained in the storage tank of a retailer or wholesale purchaser-consumer outside any covered area. (5) No person may combine any reformulated gasoline with any nonoxygenate blendstock except:

(i) A person that meets each requirement specified for a refiner under this subpart; and

(ii) The blendstock that is added to reformulated gasoline meets all reformulated gasoline standards without regard to the properties of the reformulated gasoline to which the blendstock is added. (6) No person may add any oxygenate to reformulated gasoline, except that oxygenate may be added to reformulated gasoline that is designated as OPRG provided that such gasoline is used in an oxygenated fuels program control area during an oxygenated fuels control period.

(7) No person may combine any reformulated gasoline blendstock for oxygenate blending with any other gasoline, blendstock, or oxygenate except:

(i) Oxygenate of the type and amount (or within the range of amounts) specified by the refiner or importer at the time the RBOB was produced or imported; or

(ii) Other RBOB for which the same oxygenate type and amount (or range of amounts) was specified by the refiner or importer. (8) No person may combine any VOC-controlled reformulated gasoline that is produced using ethanol with any VOC-controlled reformulated gasoline that is produced using any other oxygenate during the period January 1 through September 15.

(9) Prior to January 1, 1998:

(i) No person may combine any reformulated gasoline or RBOB that is subject to the simple model standards with any reformulated gasoline or RBOB that is subject to the complex model standards, except that such gasolines may be combined at a retail outlet or wholesale purchaserconsumer facility;

(ii) No person may combine any reformulated gasoline subject to the complex model standards that is produced at any refinery or is imported by any importer with any other reformulated gasoline that is produced at a different refinery or is imported by a different importer, unless the other refinery or importer has an identical baseline for meeting complex model standards during this period; and (iii) No person may combine any RBOB subject to the complex model standards that is produced at any refinery or is imported by any importer with any RBOB that is produced at a different refinery or is imported by a different importer, unless the other refinery or importer has an identical baseline for meeting complex model standards during this period.

(10) No person may combine any reformulated gasoline with any conventional gasoline and sell the resulting mixture as reformulated gasoline.

(b) Liability. Liability for violations of paragraph (a) of this section shall be determined according to the provisions of Sec. 80.79. (c) Determination of compliance. Compliance with the standards listed in paragraph (a) of this section shall be determined by use of one of the testing methodologies specified in Sec. 80.46, except that where test results using the testing methodologies specified in Sec. 80.46 are not available or where such test results are available but are in question, EPA may establish noncompliance with standards using any information, including the results of testing using methods that are not included in Sec. 80.46.

(d) Dates controls and prohibitions begin. The controls and prohibitions specified in paragraph (a) of this section apply at any location other than retail outlets and wholesale purchaser-consumer facilities on or after December 1, 1994, at any location on or after January 1, 1995.

Sec. 80.79 Liability for violations of the prohibited activities.

(a) Persons liable. Where the gasoline contained in any storage tank at any facility owned, leased, operated, controlled or supervised by any refiner, importer, oxygenate blender, carrier, distributor, reseller, retailer, or wholesale purchaser-consumer is found in violation of the prohibitions described in Sec. 80.78(a), the following persons shall be deemed in violation:

(1) Each refiner, importer, oxygenate blender, carrier, distributor, reseller, retailer, or wholesale purchaser-consumer who owns, leases, operates, controls or supervises the facility where the violation is found;

(2) Each refiner or importer whose corporate, trade, or brand name, or whose marketing subsidiary's corporate, trade, or brand name, appears at the facility where the violation is found;

(3) Each refiner, importer, oxygenate blender, distributor, and reseller who manufactured, imported, sold, offered for sale, dispensed, supplied, offered for supply, stored, transported, or caused the transportation of any gasoline which is in the storage tank containing gasoline found to be in violation; and (4) Each carrier who dispensed, supplied, stored, or transported any gasoline which is in the storage tank containing gasoline found to be in violation, provided that EPA demonstrates, by reasonably specific showings by direct or circumstantial evidence, that the carrier caused the violation.

(b) Defenses for prohibited activities. (1) In any case in which a refiner, importer, oxygenate blender, carrier, distributor, reseller, retailer, or wholesale purchaser-consumer would be in violation under paragraph (a) of this section, it shall be deemed not in violation if it can demonstrate:

(i) That the violation was not caused by the regulated party or its employee or agent;

(ii) That product transfer documents account for all of the gasoline in the storage tank found in violation and indicate that the gasoline met relevant requirements; and (iii)(A) That it has conducted a quality assurance sampling and testing program, as described in paragraph (c) of this section; except that

(B) A carrier may rely on the quality assurance program carried out by another party, including the party that owns the gasoline in question, provided that the quality assurance program is carried out properly.

(2)(i) Where a violation is found at a facility which is operating under the corporate, trade or brand name of a refiner, that refiner must show, in addition to the defense elements required by paragraph (b)(1) of this section, that the violation was caused by: (A) An act in violation of law (other than the Act or this part), or an act of sabotage or vandalism;

(B) The action of any reseller, distributor, oxygenate blender, carrier, or a retailer or wholesale

purchaser- consumer supplied by any of these persons, in violation of a contractual undertaking imposed by the refiner designed to prevent such action, and despite periodic sampling and testing by the refiner to ensure compliance with such contractual obligation; or

(C) The action of any carrier or other distributor not subject to a contract with the refiner but engaged by the refiner for transportation of gasoline, despite specification or inspection of procedures and equipment by the refiner which are reasonably calculated to prevent such action.

(ii) In this paragraph (b), to show that the violation ``was caused'' by any of the specified actions the party must demonstrate by reasonably specific showings, by direct or circumstantial evidence, that the violation was caused or must have been caused by another. (c) Quality assurance program. In order to demonstrate an acceptable quality assurance program for reformulated gasoline at all points in the gasoline distribution network, other than at retail outlets and wholesale purchaser-consumer facilities, a party must present evidence:

(1) Of a periodic sampling and testing program to determine if the applicable maximum and/or minimum standards for oxygen, benzene, RVP, or VOC or NO<INF>X emission performance are met; and (2) That on each occasion when gasoline is found in noncompliance with one of the requirements referred to in paragraph (c)(1) of this section:

(i) The party immediately ceases selling, offering for sale, dispensing, supplying, offering for supply, storing, transporting, or causing the transportation of the violating product; and (ii) The party promptly remedies the violation (such as by removing the violating product or adding more complying product until the applicable standards are achieved).

Sec. 80.80 Penalties.

(a) Any person that violates any requirement or prohibition of subpart D, E, or F of this part shall be liable to the United States for a civil penalty of not more than the sum of $25,000 for

every day of each such violation and the amount of economic benefit or savings resulting from each such violation.

(b) Any violation of a standard for average compliance during any averaging period, or for per-gallon compliance for any batch of gasoline, shall constitute a separate violation for each and every standard that is violated.

(c) Any violation of any standard based upon a multi-day averaging period shall constitute a separate day of violation for each and every day in the averaging period. Any violation of any credit creation or credit transfer requirement shall constitute a separate day of violation for each and every day in the averaging period. (d)(1)(i) Any violation of any per- gallon standard or of any pergallon minimum or per-gallon maximum, other than the standards specified in paragraph (e) of this section, shall constitute a separate day of violation for each and every day such gasoline giving rise to such violations remains any place in the gasoline distribution system, beginning on the day that the gasoline that violates such per-gallon standard is produced or imported and distributed and/or offered for sale, and ending on the last day that any such gasoline is offered for sale or is dispensed to any ultimate consumer for use in any motor vehicle; unless

(ii) The violation is corrected by altering the properties and characteristics of the gasoline giving rise to the violations and any mixture of gasolines that contains any of the gasoline giving rise to the violations such that the said gasoline or mixture of gasolines has the properties and characteristics that would have existed if the gasoline giving rise to the violations had been produced or imported in compliance with all per-gallon standards. (2) For the purposes of this paragraph (d), the length of time the gasoline in question remained in the gasoline distribution system shall be deemed to be twenty-five days; unless the respective party or EPA demonstrates

by reasonably specific showings, by direct or circumstantial evidence, that the gasoline giving rise to the violations remained any place in the gasoline distribution system for fewer than or more than twenty-five days. (e)(1) Any reformulated gasoline that is produced or imported and offered for sale and for which the requirements to determine the properties and characteristics under Sec. 80.65(f) is not met, or any conventional gasoline for which the refiner or importer does not sample and test to determine the relevant properties, shall be deemed: (i)(A) Except as provided in paragraph (e)(1)(i)(B) of this section to have the following properties:

Sulfur content--970 ppm

Benzene content--5 vol %

RVP (summer)--11 psi

50% distillation--250 deg.F

90% distillation--375 deg.F

Oxygen content--0 wt %

Aromatics content--50 vol %

Olefins content--26 vol %

(B) To have the following properties in paragraph (e)(1)(i)(A) of this section unless the respective party or EPA demonstrates by reasonably specific showings, by direct or circumstantial evidence, different properties for the gasoline giving rise to the violations; and

(ii) In the case of reformulated gasoline, to have been designated as meeting all applicable standards on a per-gallon basis. (2) For the purposes of paragraph (e)(1) of this section, any refiner or importer that fails to meet the independent analysis requirements of Sec. 80.65(f) may not use the results of sampling and testing that is carried out by that refiner or importer as direct

or circumstantial evidence of the properties of the gasoline giving rise to the violations, unless this failure was not caused by the refiner or importer.

(f) Any violation of any affirmative requirement or prohibition not included in paragraph (c) or (d) of this section shall constitute a separate day of violation for each and every day such affirmative requirement is not properly accomplished, and/or for each and every day the prohibited activity continues. For those violations that may be ongoing under subparts D, E, and F of this part, each and every day the prohibited activity continues shall constitute a separate day of violation.

Sec. 80.81 Enforcement exemptions for California gasoline.

(a)(1) The requirements of subparts D, E, and F of this part are modified in accordance with the provisions contained in this section in the case of California gasoline.

(2) For the purposes of this section, ``California gasoline'' means any gasoline that is sold, intended for sale, or made available for sale as a motor vehicle fuel in the State of California and that: (i) Is manufactured within the State of California; (ii) Is imported into the State of California from outside the United States; or

(iii) Is imported into the State of California from inside the United States and that is manufactured at a refinery that does not produce reformulated gasoline.

(b)(1) Any refiner, importer, or oxygenate blender of gasoline that is sold, intended for sale, or made available for sale as a motor fuel in the State of California is, with regard to such gasoline, exempt from the compliance survey provisions contained in Sec. 80.68. (2) Any refiner, importer, or oxygenate blender of California gasoline is, with regard to such gasoline, exempt from the independent analysis requirements contained in Sec. 80.65(f). (3) Any refiner, importer, or oxygenate blender of California gasoline that elects to meet any benzene content,

oxygen content, or toxics emission reduction standard specified in Sec. 80.41 on average for any averaging period specified in Sec. 80.67 that is in part before March 1, 1996, and in part subsequent to such date, shall, with regard to such gasoline that is produced or imported prior to such date, demonstrate compliance with each of the standards specified in Sec. 80.41 for each of the following averaging periods in lieu of those specified in Sec. 80.67:

(i) January 1 through December 31, 1995; and (ii) March 1, 1995, through February 29, 1996. (4) The compliance demonstration required by paragraph (b)(3)(ii) of this section shall be submitted no later than May 31, 1996, along with reports required to be submitted under Sec. 80.75(a)(1). (c) Any refiner, importer, or oxygenate blender of California gasoline that is manufactured or imported subsequent to March 1, 1996, and that meets the requirements of the California Phase 2 reformulated gasoline regulations, as set forth in Title 13, California Code of Regulations, sections 2260 et seq., is, with regard to such gasoline, exempt from the following requirements (in addition to the requirements specified in paragraph (b) of this section): (1) The parameter value reconciliation requirements contained in Sec. 80.65(e)(2);

(2) The designation of gasoline requirements contained in Sec. 80.65(d);

(3) The reformulated gasoline and RBOB compliance requirements contained in Sec. 80.65(c);

(4) The marking of conventional gasoline requirements contained in Secs. 80.65(g) and 80.82;

(5) The annual compliance audit requirements contained in Sec. 80.65(h);

(6) The downstream oxygenate blending requirements contained in Sec. 80.69;

(7) The record keeping requirements contained in Secs. 80.74 and 80.104, except that records required to be maintained under Title 13, California Code of Regulations, section 2270, shall be maintained for a period of five years from the date of creation and shall be delivered to the Administrator or to the Administrator's authorized representative upon request;

(8) The reporting requirements contained in Secs. 80.75 and 80.105; (9) The product transfer documentation requirements contained in Sec. 80.77; and

(10) The compliance attest engagement requirements contained in subpart F of this part.

(d) Any refiner, importer, or oxygenate blender that produces or imports gasoline that is sold, intended for sale, or made available for sale as a motor vehicle fuel in the State of California subsequent to March 1, 1996, shall demonstrate compliance with the standards specified in Secs. 80.41 and 80.90 by excluding the volume and properties of such gasoline from all conventional gasoline and reformulated gasoline that it produces or imports that is not sold, intended for sale, or made available for sale as a motor vehicle fuel in the State of California subsequent to such date. The exemption provided in this section does not exempt any refiner or importer from demonstrating compliance with such standards for all gasoline that it produces or imports.

(e)(1) The exemption provisions contained in paragraphs (b)(2), (b)(3), and (c) of this section shall not apply under the circumstances set forth in paragraphs (e)(2) and (e)(3) of this section. (2)(i) Such exemption provisions shall not apply to any refiner, importer, or oxygenate blender of California gasoline if any gasoline formulation that it produces or imports is certified under Title 13, California Code of Regulations, section 2265 or section 2266, unless such refiner, importer, or oxygenate blender within 30 days of the issuance of such certification:

(A) Notifies the Administrator of such certification; (B) Submits to the Administrator copies of the applicable certification order issued by the State of California and of the application for certification submitted by the regulated party to the State of California; and

(C) Submits to the Administrator a written demonstration that the certified gasoline formulation meets each of the complex model pergallon standards specified in Sec. 80.41(c).

(ii) If the Administrator determines that the written demonstration submitted under paragraph

(e)(2)(i)(C) of this section does not demonstrate that the certified gasoline formulation meets each of the complex model per-gallon standards specified in Sec. 80.41(c), the Administrator shall provide notice to the party (by first class mail) of such determination and of the date on which the exemption provisions specified in paragraph (e)(1) of this section shall no longer be applicable, which date shall be no earlier than 90 days after the date of the Administrator's notification.

(3)(i) Such exemption provisions shall not apply to any refiner, importer, or oxygenate blender of California gasoline who has been assessed a civil, criminal or administrative penalty for a violation of subpart D, E or F of this part or for a violation of the California Phase 2 reformulated gasoline regulations set forth in Title 13, California Code of Regulations, sections 2260 et seq., effective 90 days after the date of final agency or district court adjudication of such penalty assessment.

(ii) Any refiner, importer, or oxygenate blender subject to the provisions of paragraph (e)(3)(i) of this section may submit a petition to the Administrator for relief, in whole or in part, from the applicability of such provisions, for good cause. Good cause may include a showing that the violation for which a penalty was assessed was not a substantial violation of the federal or California reformulated gasoline regulations.

(f) In the case of any gasoline that is sold, intended for sale, or made available for sale as a motor vehicle fuel in the State of California subsequent to March 1, 1996, any person that manufactures, sells, offers for sale, dispenses, supplies, offers for supply, stores, transports, or causes the transportation of such gasoline is, with regard to such gasoline, exempt from the following prohibited activities provisions:

(1) The oxygenated fuels provisions contained in Sec. 80.78(a)(1)(iii);

(2) The product transfer provisions contained in Sec. 80.78(a)(1)(iv);

(3) The oxygenate blending provisions contained in Sec. 80.78(a)(7); and

(4) The segregation of simple and complex model certified gasoline provision contained in Sec. 80.78(a)(9). (g)(1) Any refiner that operates a refinery located outside the State of California at which California gasoline (as defined in paragraph (a)(2)(iii) of this section) is produced shall, with regard to such gasoline, provide to any person to whom custody or title of such gasoline is transferred, and each transferee shall provide to any subsequent transferee, documents which include the following information:

(i) The name and address of the transferor; (ii) The name and address of the transferee; (iii) The volume of gasoline which is being transferred; (iv) The location of the gasoline at the time of the transfer; (v) The date and time of the transfer; (vi) The identification of the gasoline as California gasoline; and (vii) In the case of transferrors and transferrees who are refiners, importers or oxygenate blenders, the EPA- assigned registration number of such persons.

(2) Each refiner and transferee of such gasoline shall maintain copies of the product transfer documents required to be provided by paragraph (g)(1) of this section for a period of five years from the date of creation and shall deliver such documents to the Administrator or to the Administrator's authorized representative upon request. (h) For purposes of the batch sampling and analysis requirements contained in Sec. 80.65(e)(1), any refiner, importer or oxygenate blender of California gasoline may use a sampling and/or analysis methodology prescribed in Title 13, California Code of Regulations, sections 2260 et seq., in lieu of any applicable methodology specified in Sec. 80.66.

(i) The exemption provisions contained in this section shall not be applicable after December 31, 1999.

Sec. 80.82 Conventional gasoline marker [Reserved]

Secs. 80.83-80.89 [Reserved]

Subpart E--Anti-Dumping

Sec. 80.90 Conventional gasoline baseline emissions determination.

(a) Annual average baseline values. For any facility of a refiner or importer of conventional gasoline, the annual average baseline values of the facility's exhaust benzene emissions, exhaust toxics emissions, NO<INF>x emissions, sulfur, olefins and T90 shall be determined using the following equation:

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where

BASELINE=annual average baseline value of the facility, SUMRBASE=summer baseline value of the facility, SUMRVOL=summer baseline gasoline volume of the facility, per Sec. 80.91, WNTRBASE=winter baseline value of the facility, WNTRVOL=winter baseline gasoline volume of the facility, per Sec. 80.91.

(b) Baseline exhaust benzene emissions--simple model. (1) Simple model exhaust benzene emissions of conventional gasoline shall be determined using the following equation:

EXHBEN=(1.884+0.949 x BX+0.113 x (AR-BZ)) where

EXHBEN=exhaust benzene emissions,

BZ=fuel benzene value in terms of volume percent (per Sec. 80.91), and AR=fuel aromatics value in terms of volume percent (per Sec. 80.91).

(2) The simple model annual average baseline exhaust benzene emissions for any facility of a refiner or importer of conventional gasoline shall be determined as follows: (i) The simple model baseline exhaust benzene emissions shall be determined separately for summer and winter using the facility's oxygenated individual baseline fuel parameter values for summer and winter

(per Sec. 80.91), respectively, in the equation specified in paragraph (b)(1) of this section.

(ii) The simple model annual average baseline exhaust benzene emissions of the facility shall be determined using the emissions values determined in paragraph (b)(2)(i) of this section in the equation specified in paragraph (a) of this section. (c) Baseline exhaust benzene emissions--complex model. The complex model annual average baseline exhaust benzene emissions for any facility of a refiner or importer of conventional gasoline shall be determined as follows:

(1) The summer and winter complex model baseline exhaust benzene emissions shall be determined separately using the facility's oxygenated individual baseline fuel parameter values for summer and winter (per Sec. 80.91), respectively, in the appropriate complex model for exhaust benzene emissions described in Sec. 80.45. (2) The complex model annual average baseline exhaust benzene emissions of the facility shall be determined using the emissions values determined in paragraph (c)(1) of this section in the equation specified in paragraph (a) of this section. (d) Baseline exhaust toxics emissions. The annual average baseline exhaust toxics emissions for any facility of a refiner or importer of conventional gasoline shall be determined as follows: (1) The summer and winter baseline exhaust emissions of benzene, formaldehyde, acetaldehyde, 1,3-butadiene, and polycyclic organic matter shall be determined using the oxygenated individual baseline fuel parameter values for summer and winter (per Sec. 80.91), respectively, in the appropriate complex model for each exhaust toxic (per Sec. 80.45).

(2) The summer and winter baseline total exhaust toxics emissions shall be determined separately by summing the summer and winter baseline exhaust emissions of each toxic (per paragraph (d)(1) of this section), respectively.

(3) The annual average baseline exhaust toxics emissions of the facility shall be determined

using the emissions values determined in paragraph (d)(2) of this section in the equation specified in paragraph (a) of this section.

(e) Baseline NO<INF>X emissions. The annual average baseline NO<INF>X emissions for any facility of a refiner or importer of conventional gasoline shall be determined as follows: (1) The summer and winter baseline NO<INF>X emissions shall be determined using the baseline individual baseline fuel parameter values for summer and winter (per Sec. 80.91), respectively, in the appropriate complex model for NO<INF>X (per Sec. 80.45). (2) The annual average baseline NO<INF>X emissions of the facility shall be determined using the emissions values determined in paragraph (e)(2) of this section in the equation specified in paragraph (a) of this section.

(3) The requirements specified in paragraphs (e) (1) and (2) of this section shall be determined separately using the oxygenated and nonoxygenated individual baseline fuel parameters, per Sec. 80.91. (f) Applicability of Phase I and Phase II models. The requirements of paragraphs (d) and (e) of this section shall be determined separately for the applicable Phase I and Phase II complex models specified in Sec. 80.45.

(g) Calculation accuracy. Emissions values calculated per the requirements of this section shall be determined to four (4) significant figures. Sulfur, olefin and T90 values calculated per the requirements of this section shall be determined to the same number of decimal places as the corresponding value listed in Sec. 80.91(c)(5).

Sec. 80.91 Individual baseline determination.

(a) Baseline definition. (1) The ``baseline" or ``individual baseline" of a refinery, refiner or importer, as applicable, shall consist of:

(i) An estimate of the quality, composition and volume of its 1990 gasoline, or allowable

substitute, based on the requirements specified in Secs. 80.91 through 80.93; and

(ii) Its baseline emissions values calculated per paragraph (f) of this section; and

(iii) Its 1990-1993 blendstock-to-gasoline ratios calculated per Sec. 80.102.

(2)(i) The quality and composition of the 1990 gasoline of a refinery, refiner or importer, as applicable, shall be the set of values of the following fuel parameters: benzene content; aromatic content; olefin content; sulfur content; distillation temperature at 50 and 90 percent by volume evaporated; percent evaporated at 200 deg.F and 300 deg.F; oxygen content; RVP.

(ii) A refiner, per paragraph (b)(3)(i) of this section, shall also determine the API gravity of its 1990 gasoline. (3) The methodology outlined in this section shall be followed in determining a baseline value for each fuel parameter listed in paragraph (a)(2) of this section.

(b) Requirements for refiners, blenders and importers--(1) Requirements for producers of gasoline and gasoline blendstocks. (i) A refinery engaged in the production of gasoline blendstocks from crude oil and/or crude oil derivatives, and the subsequent mixing of those blendstocks to form gasoline, shall have its baseline fuel parameter values determined from Method 1, 2 and/or 3-type data as described in paragraph (c) of this section, provided the refinery was in operation for at least 6 months in 1990.

(ii) A refinery which was in operation for at least 6 months in 1990, was shut down after 1990, and which restarts after June 15, 1994, and for which insufficient 1990 and post-1990 data was collected prior to January 1, 1995 from which to determine an individual baseline, shall have the values listed in paragraph (c)(5) of this section as its individual baseline parameters.

(iii) A refinery which was in operation for less than 6 months in 1990 shall have the values listed in paragraph (c)(5) of this section as its individual baseline parameters. (2) Requirements for producers or importers of gasoline blendstocks only. A refiner or importer of

gasoline blendstocks which did not produce or import gasoline in 1990 and which produces or imports post- 1994 gasoline shall have the values listed in paragraph (c)(5) of this section as its individual baseline parameters. (3) Requirements for purchasers of gasoline and/or gasoline blendstocks. (i) A refiner or refinery, as applicable, solely engaged in the production of gasoline from gasoline blendstocks and/or gasoline which are simply purchased and blended to form gasoline shall have its individual baseline determined using Method 1-type data (per paragraph (c) of this section) from every batch of 1990 gasoline. (ii) If Method 1-type data on every batch of the refiner's or refinery's 1990 gasoline does not exist, that refiner or refinery shall have the values listed in paragraph (c)(5) of this section as its individual baseline parameters.

(4) Requirements for importers of gasoline and/or gasoline blendstocks. (i) An importer of gasoline shall determine an individual baseline value for each fuel parameter listed in paragraph (a)(2) of this section using Method 1-type data on every batch of gasoline imported by that importer into the United States in 1990. (ii) An importer which is also a foreign refiner must determine its individual baseline using Method 1, 2 and/or 3-type data (per paragraph (c) of this section) if it imported at least 75 percent, by volume, of the gasoline produced at its foreign refinery in 1990 into the United States in 1990.

(iii) An importer which cannot meet the criteria of paragraphs (b)(4)(i) or (ii) of this section for baseline determination shall have the parameter values listed in paragraph (c)(5) of this section as its individual baseline parameter values.

(5) Requirements for exporters of gasoline and/or gasoline blendstocks. A refiner shall not include quality or volume data on its 1990 exports of gasoline blendstocks or gasoline in its baseline determination.

(c) Data types--(1) Method 1-type data. (i) Method 1-type data shall consist of quality

(composition and property data) and volume records of gasoline produced in or shipped from the refinery in 1990, excluding exported gasoline. The measured fuel parameter values and volumes of batches, or shipments if not batch blended, shall be used except that data on produced gasoline which was also shipped shall be included only once. (ii) Gasoline blendstock which left a facility in 1990 and which could become gasoline solely upon the addition of oxygenate shall be included in the baseline determination. (A) Fuel parameter values of such blendstock shall be accounted for as if the gasoline blendstock were blended with ten (10.0) volume percent ethanol.

(B) If the refiner or importer can provide evidence that such gasoline blendstock was not blended per paragraph (c)(1)(ii)(A) of this section, and that such gasoline blendstock was blended with another oxygenate or a different volume of ethanol, the fuel parameter values of the final gasoline (including oxygenate) shall be included in the baseline determination.

(C) If the refiner or importer can provide evidence that such gasoline blendstock was not blended per paragraph (c)(1)(ii)(A) or (B) of this section, and that such gasoline blendstock was sold with out further changes downstream, the fuel parameter values of the original product shall be included in the baseline determination. (iii) Data on 1990 gasoline purchased or otherwise received, including intracompany transfers, shall not be included in the baseline determination of a refiner's or importer's facility if the gasoline exited the receiving refinery unchanged from its arrival state. (2) Method 2-type data. Method 2-type data shall consist of 1990 gasoline blendstock quality data and 1990 blendstock production records, specifically the measured fuel parameter values and volumes of blendstock used in the production of gasoline within the refinery. Blendstock data shall include volumes purchased or otherwise received, including intracompany transfers, if the volumes were blended as part of the refiner's or importer's 1990 gasoline. Henceforth in Secs. 80.91 through 80.93, ``blendstock(s)" or ``gasoline blendstock(s)"

shall include those products or streams commercially blended to form gasoline.

(3) Method 3-type data. (i) Method 3-type data shall consist of post-1990 gasoline blendstock and/or gasoline quality data and 1990 blendstock and gasoline production records, specifically the measured fuel parameter values and volumes of blendstock used in the production of gasoline within the refinery. Blendstock data shall include volumes purchased or otherwise received, including intracompany transfers, if the volumes were blended as part of the refiner's or importer's 1990 gasoline.

(ii) In order to use Method 3-type data, the refiner or importer must do all of the following:

(A) Include a detailed discussion comparing its 1990 and post-1990 refinery operations and all other differences which would cause the 1990 and post-1990 fuel parameter values to differ; and

(B) Perform the appropriate calculations so as to adjust for the differences determined in paragraph (c)(3)(ii)(A) of this section; and (C) Include a narrative, discussing the methodology and reasoning for the adjustments made per paragraph (c)(3)(ii)(B) of this section.

(iii) In order to use post-1990 gasoline data, either of the following must be shown for each blendstock-type included in 1990 gasoline, excluding butane:

(A) The post-1990 volumetric fraction of a blendstock is within (+/ -)10.0 percent of the volumetric fraction of that blendstock in 1990 gasoline. For example, if a 1990 blendstock constituted 30 volume percent of 1990 gasoline, this criterion would be met if the post-1990 volumetric fraction of the blendstock in post-1990 gasoline was 27.0- 33.0 volume percent.

(B) The post-1990 volumetric fraction of a blendstock is within (+/ -)2.0 volume percent of the absolute value of the 1990 volumetric fraction. For example, if a 1990 blendstock constituted 5 volume percent of 1990 gasoline, this criterion would be met if the post-1990 volumetric fraction of the blendstock in post-1990 gasoline was 3-7 volume percent.

(iv) If using post-1990 gasoline data, post-1990 gasoline blendstock which left a facility and which could become gasoline solely upon the addition of oxygenate shall be included in the baseline determination, per the requirements specified in paragraph (c)(1)(ii) of this section.

(4) Hierarchy of data use. (i) A refiner or importer must determine a baseline fuel parameter value using only Method 1-type data if sufficient Method 1-type data is available, per paragraph (d)(1)(ii) of this section.

(ii) If a refiner has insufficient Method 1-type data for a baseline parameter value determination, it must supplement that data with all available Method 2-type data, until it has sufficient data, per paragraph (d)(1)(iii) of this section. (iii) If a refiner has insufficient Method 1- and Method 2-type data for a baseline parameter value determination, it must supplement that data with all available Method 3-type data, until it has sufficient data, per paragraph (d)(1)(iii) of this section. (iv) The protocol for the determination of baseline fuel parameter values in paragraphs (c)(4)(i) through (iii) of this section shall be applied to each fuel parameter one at a time. (5) Anti-dumping statutory baseline. (i) The summer anti-dumping statutory baseline shall have the set of fuel parameter values identified as ``summer'' in Sec. 80.45(b)(2). The anti-dumping summer API gravity shall be 57.4 deg.API.

(ii) The winter anti-dumping statutory baseline shall have the set of fuel parameter values identified as ``winter'' in Sec. 80.45(b)(2), except that winter RVP shall be 8.7 psi. The anti-dumping winter API gravity shall be 60.2 API.

(iii) The annual average anti-dumping statutory baseline shall have the following set of fuel parameter values:

Benzene, volume percent--1.60

Aromatics, volume percent--28.6

Olefins, volume percent--10.8

RVP, psi--8.7

T50, degrees F--207

T90, degrees F--332

E200, percent--46

E300, percent--83

Sulfur, ppm--338

API Gravity, deg.API--59.1

(d) Data collection and testing requirements--(1) Minimum sampling requirements.--(i) General requirements. (A) Data shall have been obtained for at least three months of the refiner's or importer's production of summer gasoline and at least three months of its production of winter gasoline.

(1) A summer month shall be any month during which the refiner produced any gasoline which met the federal summer gasoline volatility requirements. Winter shall be any month which could not be considered a summer month.

(2) The three months which compose the summer and the winter data do not have to be consecutive nor within the same year. (3) If, in 1990, a refiner marketed all of its gasoline only in an area or areas which experience no seasonal changes relative to gasoline requirements, e.g., Hawaii, only 3 months of data are required. (B) Once the minimum sampling requirements have been met, data collection may cease. Additional data may only be included for the remainder of the calendar year in which the minimum sampling requirements were met. In any case, all available data collected up until the time data collection ceases must be utilized in the baseline determination.

(C) Less than the minimum requirements specified in paragraph (d)(1) of this section may be allowed, upon petition and approval (per Sec. 80.93), if it can be shown that the available data is sufficient in quality and quantity to use in the baseline determination. (ii) Method 1 sampling requirements. At least half of the batches, or shipments if not batch blended, in a calendar month shall have been sampled over a minimum of six months in 1990. (iii) Method 2 sampling requirements. (A) Continuous blendstock streams shall have been sampled at least weekly over a minimum of six months in 1990.

(B) For blendstocks produced on a batch basis, at least half of all batches of a single blendstock type produced in a calendar month shall have been sampled over a minimum of six months in 1990. (iv) Method 3 sampling requirements--(A) Blendstock data. (1) Post- 1990 continuous blendstock streams shall have been sampled at least weekly over a minimum of six months.

(2) For post-1990 blendstocks produced on a batch basis, at least half of all batches of a single blendstock type produced in a calendar month shall have been sampled over a minimum of six months. (B) Gasoline data. At least half of the post-1990 batches, or shipments if not batch blended, in a calendar month shall have been sampled over a minimum of six months in order to use post-1990 gasoline data.

(2) Sampling beyond today's date. The necessity and actual occurrence of data collection after today's date must be shown. (3) Negligible quantity sampling. Testing of a blendstock stream for a fuel parameter listed in this paragraph (d)(3) is not required if the refiner can show that the fuel parameter exists in the stream at less than or equal to the amount, on average, shown in this paragraph (d)(3) for that fuel parameter. Any fuel parameter shown to exist in a refinery stream in negligible amounts shall be assigned a value of 0.0:

Aromatics, volume percent--1.0

Benzene, volume percent--0.15

Olefins, volume percent--1.0

Oxygen, weight percent--0.2

Sulfur, ppm--30.0

(4) Sample compositing. (i) Samples of gasoline or blendstock which have been retained, but not analyzed, may be mixed prior to analysis and analyzed, as described in paragraphs (d)(4)(iii) (A) through (H) of this section, for the required fuel parameters. Samples must be from the same season and year and must be of a single grade or of a single type of batch-produced blendstock.

(ii) Blendstock samples of a single blendstock type obtained from continuous processes over a calendar month may be mixed together in equal volumes to form one blendstock sample and the sample subsequently analyzed for the required fuel parameters. (iii)(A) Samples shall have been collected and stored per the method normally employed at the refinery in order to prevent change in product composition with regard to baseline properties and to minimize loss of volatile fractions of the sample. (B) Properties of the retained samples shall be adjusted for loss of butane by comparing the RVP measured right after blending with the RVP determined at the time that the supplemental properties are measured.

(C) The volume of each batch or shipment sampled shall have been noted and the sum of the volumes calculated to the nearest hundred (100) barrels.

(D) For each batch or shipment sampled, the ratio of its volume to the total volume determined in paragraph (d)(4)(iii)(C) of this section shall be determined to three (3) decimal places. This shall be the volumetric fraction of the shipment in the mixture. (E) The total minimum volume required to perform duplicate analyses to obtain values of all of the required fuel parameters shall be determined.

(F) The volumetric fraction determined in paragraph (d)(4)(iii)(D) of this section for each batch or shipment shall be multiplied by the value determined in paragraph (d)(4)(iii)(E) of this section. (G) The resulting value determined in paragraph (d)(4)(iii)(F) of this section for each batch or shipment shall be the volume of each batch or shipment's sample to be added to the mixture. This volume shall be determined to the nearest milliliter. (H) The appropriate volumes of each shipment's sample shall be thoroughly mixed and the solution analyzed per the methods normally employed at the refinery.

(5) Test methods. (i) If the test methods used to obtain fuel parameter values of gasoline and gasoline blendstocks differ or are otherwise not equivalent in precision or accuracy to the corresponding test method specified in Sec. 80.46, results obtained under those procedures will only be acceptable, upon petition and approval (per Sec. 80.93), if the procedures are or were industry-accepted procedures for measuring the properties of gasoline and gasoline blendstocks at the time the measurement was made.

(ii) Oxygen content may have been determined analytically or from oxygenate blending records.

(A) The fuel parameter values, other than oxygen content, specified in paragraph (a) of this section, must be established as for any blendstock, per the requirements of this paragraph (d). (B) All oxygen associated with allowable gasoline oxygenates per Sec. 80.2(jj) shall be included in the determination of the baseline oxygen content, if oxygen content was determined analytically. (C) Oxygen content shall be assumed to be contributed solely by the oxygenate which is indicated on the blending records, if oxygen content was determined from blending records.

(6) Data quality. Data may be excluded from the baseline determination if it is shown to the satisfaction of the Director of the Office of Mobile Sources, or designee, that it is not within the normal range of values expected for the gasoline or blendstock sample, considering unit

configuration, operating conditions, etc.; due to: (i) Improper labeling; or

(ii) Improper testing; or

(iii) Other reasons as verified by the auditor specified in Sec. 80.92.

(e) Baseline fuel parameter determination--(1) Closely integrated gasoline producing facilities. Each refinery or blending facility must determine a set of baseline fuel parameter values per this paragraph (e). A single set of baseline fuel parameters may be determined, upon petition and approval, for two or more facilities under either of the following circumstances:

(i) Two or more refineries or sets of gasoline blendstock-producing units of a refiner engaged in the production of gasoline per paragraph (b)(1) of this section which are geographically proximate to each other, yet not within a single refinery gate, and whose 1990 operations were significantly interconnected.

(ii) A gasoline blending facility operating per paragraph (b)(3) of this section received at least 75 percent of its 1990 blendstock volume from a single refinery, or from one or more refineries which are part of an aggregate baseline per Sec. 80.101(h). The blending facility and associated refinery(ies) must be owned by the same refiner. (2) Equations--(i) Parameter determinations. Average baseline fuel parameters shall be determined separately for summer and winter using summer and winter data (per paragraph (d)(1)(i)(A) of this section), respectively, in the applicable equation listed in paragraphs (e)(2) (ii) through (iv) of this section, except that average baseline winter RVP shall be 8.7 psi.

(ii) Product included in parameter determinations. In each of the equations listed in paragraphs (e)(2) (ii) through (iv) of this section, the following shall apply:

(A) All gasoline produced to meet EPA's 1990 summertime volatility requirements shall be considered summer gasoline. All other gasoline shall be considered winter gasoline.

(B) (1) Baseline total annual 1990 gasoline volume shall be the larger of the total volume of gasoline produced in or shipped from the refinery in 1990.

(2) Baseline summer gasoline volume shall be the total volume of low volatility gasoline which met EPA's 1990 summertime volatility requirements. Baseline summer gasoline volume shall be determined on the same basis (produced or shipped) as baseline total annual gasoline volume.

(3) Baseline winter gasoline volume shall be the baseline total annual gasoline volume minus the baseline summer gasoline volume. (C) Fuel parameter values shall be determined in the same units and at least to the same number of decimal places as the corresponding fuel parameter listed in paragraph (c)(5) of this section. (D) Volumes shall be reported to the nearest barrel or to the degree at which historical records were kept. (iii) Method 1. Summer and winter Method 1-type data, per paragraph (c)(1) of this section, shall be evaluated separately according to the following equation:

<GRAPHIC><TIF13>TR16FE94.013

where:

X<INF>bs=summer or winter baseline value of fuel parameter X for the refinery

s=season, summer or winter, per paragraph (d)(1)(i)(A)(1) of this section

g=separate grade of season s gasoline produced by the refinery in 1990 p<INF>s=total number of different grades of season s gasoline produced by the refinery in 1990

T<INF>gs=total volume of season s grade g gasoline produced in 1990 N<INF>s=total volume of season s gasoline produced by the refinery in 1990

i=separate batch or shipment of season s 1990 gasoline sampled n<INF>gs=total number of season s samples of grade g gasoline X<INF>gis=parameter value of grade g gasoline sample i in season s V<INF>gis=volume of season s grade g gasoline sample i SG<INF>gis=specific

gravity of season s grade g gasoline sample i (used only for fuel parameters measured on a weight basis)

(iv) Method 2. Summer and winter Method 2-type data, per paragraph (c)(2) of this section, shall be evaluated separately according to the following equation:

<GRAPHIC><TIF14>TR16FE94.014

where

X<INF>bs=Summer or winter baseline value of fuel parameter X for the refinery

s=season, summer or winter, per paragraph (d)(1)(i)(A)(1) of this section

j=type of blendstock (e.g., reformate, isomerate, alkylate, etc.) m<INF>s=total types of blendstocks in season s 1990 gasoline T<INF>js=total 1990 volume of blendstock j produced in the refinery and used in the refinery's season s gasoline N<INF>s=total volume of season s gasoline produced in the refinery in 1990

i=sample of blendstock j

n<INF>js=number of samples of season s blendstock j from continuous process streams X<INF>ijs=parameter value of sample i of season s blendstock j p<INF>js=number of samples of season s batch-produced blendstock j V<INF>ijs=volume of batch of sample i of season s blendstock j SG<INF>ijs=specific gravity of sample i of season s blendstock j (used only for fuel parameters measured on a weight basis)

(v) Method 3. (A) Post-1990 Blendstock. Summer and winter Method 3- type data, per paragraph (c)(3) of this section, shall be evaluated separately according to the following equation:

<GRAPHIC><TIF15>TR16FE94.015

where

X<INF>bs=Summer or winter baseline value of fuel parameter X for the refinery

s=season, summer or winter, per paragraph (d)(1)(i)(A)(1) of this section

j=type of blendstock (e.g., reformate, isomerate, alkylate, etc.) m<INF>s=total types of blendstocks in season s 1990 gasoline T<INF>js=total 1990 volume of blendstock j produced in the refinery and used in the refinery's season s gasoline N<INF>s=total volume of season s gasoline produced in the refinery in 1990

i=sample of post-1990 season s blendstock j n<INF>js=number of samples of post-1990 season s blendstock j from continuous process streams

X<INF>ijs=parameter value of sample i of post-1990 season s blendstock j

p<INF>js=number of samples of post-1990 season s batch-produced blendstock j

V<INF>ijs=volume of post-1990 batch of sample i of season s blendstock j

SG<INF>ijs=specific gravity of sample i of season s blendstock j (used only for fuel parameters measured on a weight basis)

(B) Post-1990 gasoline. Summer and winter Method 3-type gasoline data, per paragraph (c)(3) of this section, shall be evaluated separately according to the following equation:

<GRAPHIC><TIF16>TR16FE94.016

where:

X<INF>bs=Summer or winter baseline value of fuel parameter X for the refinery

s=season, summer or winter, per paragraph (d)(1)(i)(A)(1) of this section

g=separate grade of season s gasoline produced by the refinery in 1990 p<INF>s=total number of different grades of season s gasoline produced by the refinery in 1990

T<INF>gs=total volume of season s grade g gasoline produced in 1990 N<INF>s=total volume of season s gasoline produced by the refinery in 1990

i=separate batch or shipment of post-1990 season s gasoline sampled n<INF>gs=total number of samples of post-1990 season s grade g gasoline X<INF>gis=parameter value of post-1990 grade g season s gasoline sample i

V<INF>gis=volume of post-1990 season s grade g gasoline sample i SG<INF>gis=specific gravity of post-1990 season s grade g gasoline sample i (used only for fuel parameters measured on a weight basis)

(3) Percent evaporated determination. (i) Baseline E200 and E300 values shall be determined directly from actual measurement data. (ii) If the data per paragraph (e)(3)(i) of this section are unavailable, upon petition and approval, baseline E200 and E300 values shall be determined from the following equations using the baseline T50 and T90 values, if the baseline T50 and T90 values are otherwise acceptable:

E200=147.91-(0.49 x T50)

E300=155.47-(0.22 x T90)

(4) Oxygen in the baseline. Baseline fuel parameter values shall be determined on both an oxygenated and non-oxygenated basis. (i) If baseline values are determined first on an oxygenated basis, per paragraph (e) of this section, the calculations in paragraphs (e)(4)(i) (A) through (C) of this section shall be performed to determine the value of each baseline parameter on a non-oxygenated basis.

(A) Benzene, aromatic, olefin and sulfur content shall be determined on a non-oxygenated basis according to the following equation:

<GRAPHIC><TIF17>TR16FE94.017

where

UV=non-oxygenated parameter value

AV=oxygenated parameter value

OV=1990 oxygenate volume as a percent of total production

(B) Reid vapor pressure (RVP) shall be determined on a nonoxygenated basis according to the following equation:

<GRAPHIC><TIF18>TR16FE94.018

where

UR=non-oxygenated RVP (baseline value) BR=oxygenated RVP

i=type of oxygenate used in 1990

n=total number of different types of oxygenates used in 1990 OV<INF>i=1990 volume, as a percent of total production, of oxygenate i OR<INF>i=blending RVP of oxygenate i

(C) Test data and engineering judgement shall be used to estimate T90, T50, E300 and E200 baseline values on a non-oxygenated basis. Allowances shall be made for physical dilution and distillation effects only, and not for refinery operational changes, e.g., decreased reformer severity required due to the octane value of oxygenate which would reduce aromatics.

(ii) If baseline values are determined first on a non-oxygenated basis, the calculations in paragraphs (e)(4)(ii) (A) through (C) of this section shall be performed to determine the value of each baseline parameter on an oxygenated basis.

(A) Benzene, aromatic, olefin and sulfur content shall be determined on an oxygenated basis according to the following equation:

AV=UV x (100-OV)

where

AV=oxygenated parameter value

UV=no-oxygenated parameter value

OV=1990 oxygenate volume as a percent of total production

(B) Reid vapor pressure (RVP) shall be determined on an oxygenated basis according to the following equation:

<GRAPHIC><TIF19>TR16FE94.019

where

BR=oxygenated RVP

UR=non-oxygenated RVP

i=type of oxygenate

n=total number of different types of oxygenates OV<INF>i=1990 volume, as a percent of total production, of oxygenate i OR<INF>i=blending RVP of oxygenate i

(C) Test data and engineering judgement shall be used to estimate T90, T50, E300 and E200 baseline values on an oxygenated basis. Allowances shall be made for physical dilution and distillation effects only, and not for refinery operational changes, e.g., decreased reformer severity required due to the octane value of oxygenate which would reduce aromatics.

(5) Work-in-progress. A refiner may, upon petition and approval (per Sec. 80.93), be allowed to account for work- in-progress at one or more of its refineries in 1990 in the determination of that refinery's baseline fuel parameters using Method 1, 2 or 3-type data if it meets the requirements specified in this paragraph (e)(5). (i) Work-in-progress shall include: (A) Refinery modification projects involving gasoline blendstock or distillate producing units which were under construction in 1990; or (B) Refinery modification projects involving gasoline blendstock or distillate producing units which were contracted for prior to or in 1990 such that the refiner was committed to purchasing materials and constructing the project.

(ii) The modifications discussed in paragraph (e)(5)(i) of this section must have been initiated

with intent of complying with a legislative or regulatory environmental requirement enacted or promulgated prior to January 1, 1991.

(iii) When comparing emissions or parameter values determined with and without the anticipated work-in-progress adjustment, at least one of the following situations results when comparing annual average baseline values per Sec. 80.90:

(A) A 2.5 percent or greater difference in exhaust benzene emissions (per Sec. 80.90); or

(B) A 2.5 percent or greater difference in total exhaust toxics emissions (per Sec. 80.90(d)); or

(C) A 2.5 percent or greater difference in NO<INF>X emissions (per Sec. 80.90(e)); or

(D) A 10.0 percent or greater difference in sulfur values; or (E) A 10.0 percent or greater difference in olefin values; or (F) A 10.0 percent or greater difference in T90 values. (iv) The requirements of paragraph (e)(5)(iii) of this section shall be determined according to the following equation:

<GRAPHIC><TIF20>TR16FE94.020

(v) The capital involved in the work-in-progress is at least: (A) 10.0 percent of the refinery's depreciated book value as of the work-in-progress start-up date; or

(B) $10 million.

(vi) Sufficient data shall have been obtained since reliable operation of the work-in-progress was achieved. Such data shall be used in the determination of the adjusted baseline fuel parameter and as verification of the effect of the work-in-progress. (vii) Increases in each of the annual average baseline values (per Sec. 80.90) of exhaust benzene emissions, exhaust toxics emissions and NO<INF>X emissions due to work-in-progress adjustments are limited to the larger of:

(A) The unadjusted annual average baseline value of each emission specified in this paragraph

(e)(5)(vii); or (B) The following values:

(1) Exhaust benzene emissions, simple model, 6.77; (2) Exhaust benzene emissions, complex model, 34.68 mg/mile; (3) Exhaust toxics emissions, 53.20 mg/mile in Phase I, 109.7 mg/ mile in Phase II;

(4) NO<INF>X emissions, 750.1 mg/mile in Phase I, 1534. mg/mile in Phase II.

(viii) When compliance is achieved using the simple model (per Sec. 80.101), increases in each of the annual average baseline values (per Sec. 80.90) of sulfur, olefins and T90 due to work-in-progress adjustments are limited to the larger of: (A) The unadjusted annual average baseline value of each specified fuel parameter specified in this paragraph (e)(5)(viii); or (B) The following values:

(1) Sulfur, 355 ppm;

(2) Olefins, 11.3 volume percent;

(3) T90, 349 deg.F.

(ix) All work-in-progress adjustments must be accompanied by: (A) Unadjusted and adjusted fuel parameters, emissions, and volumes; and

(B) A description of the current status of the work-in-progress (i.e., the refinery modification project) and the date on which normal operations were achieved; and

(C) A narrative describing the situation, the types of calculations, and the reasoning supporting the types of calculations done to determine the adjusted values. (6) Baseline adjustment for extenuating circumstances. (i) Baseline adjustments may be allowed, upon petition and approval (per Sec. 80.93), if a refinery had downtime of a gasoline blendstock producing unit for 30 days or more in 1990 due to: (A) Unplanned, unforeseen circumstances; or (B) Non-annual maintenance (turnaround). (ii) Fuel parameter and volume adjustments

shall be made by assuming that the downtime did not occur in 1990. (iii) All extenuating circumstance adjustments must be accompanied by:

(A) Unadjusted and adjusted fuel parameters, emissions, and volumes; and

(B) A description of the current status of the extenuating circumstance and the date on which normal operations were achieved; and (C) A narrative describing the situation, the types of calculations, and the reasoning supporting the types of calculations done to determine the adjusted values. (7) Baseline adjustments for 1990 JP-4 production. (i) Baseline adjustments may be allowed, upon petition and approval (per Sec. 80.93), if a refinery produced JP-4 jet fuel in 1990 and meets all of the following requirements:

(A) The refinery is the only refinery of a refiner such that it cannot form an aggregate baseline with another refinery (per paragraph (f) of this section) or all of the refineries of a refiner produced JP- 4 in 1990 and each of the refineries also meets the requirements specified in paragraphs (e)(7)(i) (B) and (C) of this section. (B) The refinery will not produce reformulated gasoline. If the refinery produces reformulated gasoline at any time in a calendar year, its compliance baseline shall revert to its unadjusted baseline values for that year and all subsequent years. (C) The ratio of the refinery's 1990 JP-4 production to its 1990 gasoline production equals or exceeds 0.5. (ii) Fuel parameter and volume adjustments shall be made by assuming that no JP-4 was produced in 1990. (iii) All adjustments due to 1990 JP-4 production must be accompanied by:

(A) Unadjusted and adjusted fuel parameters, emissions, and volumes; and

(B) A narrative describing the situation, the types of calculations, and the reasoning supporting the types of calculations done to determine the adjusted values. (f) Baseline volume and emissions determination--(1) Individual baseline volume. (i) The individual baseline

volume of a refinery described in paragraph (b)(1)(i) of this section shall be the larger of the total gasoline volume produced in or shipped from the refinery in 1990, excluding gasoline blendstocks and exported gasoline, and including the oxygenate volume associated with any product meeting the requirements specified in paragraph (c)(1)(ii) of this section. (ii) Gasoline brought into the refinery in 1990 which exited the refinery, in 1990, unchanged shall not be included in determining the refinery's baseline volume.

(iii) If a refiner is allowed to adjust its baseline per paragraphs (e)(5) through (e)(7) of this section, its individual baseline volume shall be the volume determined after the adjustment. (iv) The individual baseline volume for facilities deemed closely integrated, per paragraph (e)(1) of this section, shall be the combined 1990 gasoline production of the facilities, so long as mutual volumes are not double-counted, i.e., volumes of blendstock sent from the refinery to the blending facility should not be included in the blending facility's volume.

(v) The baseline volume of a refiner, per paragraph (b)(3) of this section, shall be the larger of the total gasoline volume produced in or shipped from the refinery in 1990, excluding gasoline blendstocks and exported gasoline.

(vi) The baseline volume of an importer, per paragraph (b)(4) of this section, shall be the total gasoline volume imported into the U.S. in 1990.

(2) Individual baseline emissions. (i) Individual annual average baseline emissions (per Sec. 80.90) shall be determined for every refinery, refiner or importer, as applicable. (ii) For each individual summer or winter baseline fuel parameter value (determined per paragraph (e) of this section) which is outside of the complex model conventional gasoline valid range for that parameter (per Sec. 80.45(f)(1)(ii)), the complex model range is extended only for such fuel parameters, in both baseline and compliance complex model emissions determinations, and only

for the applicable summer or winter models.

(iii) Facilities deemed closely integrated, per paragraph (e)(1) of this section, shall have a single set of annual average individual baseline emissions.

(iv) Aggregate baselines (per Sec. 80.101(h)) must have the NO<INF>X emissions of all refineries in the aggregate determined on the same basis, using either oxygenated or non-oxygenated baseline fuel parameters.

(3) Geographic considerations requiring individual conventional gasoline compliance baselines. (i) Anyone may petition EPA to establish separate baselines for refineries located in and providing conventional gasoline to an area with a limited gasoline distribution system if it can show that the area is experiencing increased toxics emissions due to an ozone nonattainment area opting into the reformulated gasoline program pursuant to section 211(k)(6) of the Act. (ii) If EPA agrees with the finding of paragraph (f)(4)(i) of this section, it shall require that the baselines of such refineries be separate from refineries not located in the area. (iii) If two (2) or more of a refiner's refineries are located in the geographic area of concern, the refiner may aggregate the baseline emissions and sulfur, olefin and T90 values of the refineries or have an individual baseline for one or more of the refineries, per paragraph (f)(3) of this section.

(4) Baseline recalculations. Aggregate baseline exhaust emissions (per Sec. 80.90) and baseline sulfur, olefin and T90 values and aggregate baseline volumes shall be recalculated under the following circumstances:

(i) A refinery included in an aggregate baseline is entirely shutdown. If the shutdown refinery was part of an aggregate baseline, the aggregate baseline emissions, aggregate baseline sulfur, olefin and T90 values and aggregate volume shall be recalculated to account for the removal of the shutdown refinery's contributions to the aggregate baseline.

(ii) A refinery exchanges owners.

(A) All aggregate baselines affected by the exchange shall be recalculated to reflect the addition or subtraction of the baseline exhaust emissions, sulfur, olefin and T90 values and volumes of that refinery.

(B) The new owner may elect to establish an individual baseline for the refinery or to include it in an aggregate baseline. (C) If the refinery was part of an aggregate of three or more refineries, the remaining refineries in the aggregate from which that refinery was removed will have a new aggregate baseline. If the refinery was part of an aggregate of only two refineries, the remaining refinery will have an individual baseline. (g) Inability to meet the requirements of this section. If a refiner or importer is unable to comply with one or more of the requirements specified in paragraphs (a) through (f) of this section, it may, upon petition and approval, accommodate the lack of compliance in a reasonable, logical, technically sound manner, considering the appropriateness of the alternative. A narrative of the situation, as well as any calculations and results determined, must be documented.

Sec. 80.92 Baseline auditor requirements.

(a) General requirements. (1) Each refiner or importer is required to have its individual baseline determination methodology, resulting baseline fuel parameter, volume and emissions values, and 1990-1993 blendstock-to-gasoline ratios (per Sec. 80.102) verified by an auditor which meets the requirements described in this section. A refiner or importer which has the anti-dumping statutory baseline as its individual baseline is exempt from this requirement. (2) An auditor may be an individual or organization, and may utilize contractors and subcontractors to assist in the verification of a baseline.

(3) If an auditor is an organization, one or more persons shall be designated as primary

analyst(s). The primary analyst(s) shall meet the requirements described in paragraphs (c) (2) and (3) of this section and shall be responsible for the baseline audit per paragraph (f) of this section.

(b) Independence. The auditor, its contractors, subcontractors and their organizations shall be independent of the submitting organization. All of the criteria listed in paragraphs (b) (1) and (2) of this section must be met by every individual involved in substantive aspects of the baseline verification.

(1) Previous employment criteria. (i) None of the auditing personnel, including any contractor or subcontractor personnel, involved in the baseline verification for a refiner or importer shall have been employed by the refiner or importer at any time during the three (3) years preceding the date of hire of the auditor by the refiner or importer for baseline verification purposes. (ii) Auditor personnel may have been a contractor or subcontractor to the refiner or importer, as long as all other criteria listed in this section are met.

(iii) Auditor personnel may also have developed the baseline of the refiner or importer whose baseline they are auditing, but not as an employee (per paragraph (b)(1)(i) of this section). Those involved only in the development of the baseline of the refiner or importer need not meet the requirements specified in this section. (2) Financial criteria. Neither the primary analyst, nor the auditing organization nor any organization or individual which may be contracted or subcontracted to supply baseline verification expertise shall:

(i) Have received more than one quarter of its revenue from the refiner or importer during the year prior to the date of hire of the auditor by the refiner or importer for auditing purposes. Income received from the refiner or importer to develop the baseline being audited is excepted; nor

(ii) Have a total of more than 10 percent of its net worth with the refiner or importer; nor

(iii) Receive compensation for the audit which is dependent on the outcome of the audit.

(c) Technical ability. All of the following criteria must be met by the auditor in order to

demonstrate its technical capability to perform the baseline audit:

(1) The auditor shall be technically capable of evaluating a baseline determination. It shall have personnel familiar with petroleum refining processes, including associated computational procedures, methods of product analysis and economics, and expertise in conducting the auditing process, including skills for effective data gathering and analysis.

(2) The primary analyst must understand all technical details of the entire baseline audit process.

(3)(i) The primary analyst shall have worked at least five (5) years in either refinery operations or as a consultant for the refining industry.

(ii) If one or more computer models designed for refinery planning and/or economic analysis are used in the verification of an individual baseline, the primary analyst must have at least three (3) years experience working with the model(s) utilized in the verification. (iii) EPA may, upon petition, waive one or more of the requirements specified in paragraph (c)(3) of this section if the technical capability of the primary analyst is demonstrated to the satisfaction of the Director of the Office of Mobile Sources, or designee. (d) Auditor qualification statement. A statement documenting the qualifications of the auditor, primary analyst(s), contractors, subcontractors and their organizations must be submitted to EPA (Fuel Studies and Standards Branch, Baseline Auditor, U.S. EPA, 2565 Plymouth Rd., Ann Arbor, MI 48105).

(1) Timing. (i) The auditor qualification statement may be submitted by the refiner or importer prior to baseline submission (per Sec. 80.93) or by a potential auditor at any time. The auditor will be deemed certified when all qualifications are met, to the satisfaction of the Director of the Office of Mobile Sources, or designee. If no response is received from EPA within 45 days of application or today's date, whichever is later, the auditor shall be deemed certified. (ii) The auditor qualification statement may be submitted by the refiner or importer with its baseline

submission (per Sec. 80.93). If the auditor does not meet the criteria specified in this section, the baseline submission will not be accepted. (2) Content. The auditor qualification statement must contain all of the following information and may contain additional information which may aid EPA's review of the qualification statement: (i) The name and address of each person and organization involved in substantive aspects of the baseline audit, including the auditor, primary analyst(s), others within the organization, and contractors and subcontractors;

(ii) The refiners and/or importers for which the auditor, its contractors and subcontractors and their organizations do not meet the independence criteria described in paragraph (b) of this section; and (iii) The technical qualifications and experience of each person involved in the baseline audit, including a showing that the requirements described in paragraph (c) of this section are met. (e) Refiner and importer responsibility. (1) Each refiner and importer required to have its baseline verified by an auditor (per paragraph (a)(1) of this section) is responsible for utilizing an auditor for baseline verification which meets the requirements specified in paragraphs (b) and (c) of this section. (2) A refiner's or importer's baseline submission will not be accepted until it has been verified using an auditor which meets the requirements specified in paragraphs (b) and (c) of this section. (f) Auditor responsibilities. (1) The auditor must verify that all baseline submission requirements are fulfilled. This includes, but is not limited to, the following:

(i) Verifying that all data is correctly accounted for; (ii) Verifying that all calculations are performed correctly; (iii) Verifying that all adjustments to the data and/or calculations to account for post-1990 data, work-in-progress, and/or extenuating or other circumstances, as allowed per Sec. 80.91, are valid and performed correctly.

(2) The primary analyst shall prepare and sign a statement, to be included in the baseline submission of the refiner or importer, stating that:

(i) He/she has thoroughly reviewed the sampling methodology and baseline calculations; and

(ii) To the best of his/her knowledge, the requirements and intentions of the rulemaking are met in the baseline determination; and (iii) He/she agrees with the final baseline parameter, volume and emission values listed in the baseline submission. (3) The auditor may be subject to debarment under U.S.C. 1001 if it displays gross incompetency, intentionally commits an error in the verification process or misrepresents itself or information in the baseline verification.

Sec. 80.93 Individual baseline submission and approval.

(a) Submission timing. (1) Each refiner, blender or importer shall submit two copies of its individual baseline to EPA (Fuel Studies and Standards Branch, Baseline Submission, U.S. EPA, 2565 Plymouth Rd., Ann Arbor, MI 48105) not later than June 1, 1994. (2) If a refiner must collect data after December 15, 1993 (per Sec. 80.91(d)(2)), it shall submit two copies of its individual baseline to EPA (per Sec. 80.93(a)(1)) by September 1, 1994. (3)(i) All petitions required for baseline adjustments or methodology deviations will be approved or disapproved by the Director of the Office of Mobile Sources, or designee. All instances where a ``showing" or other proof is required are also subject to approval by the Director of the Office of Mobile Sources, or designee. (ii) Auditor-verified petitions, ``showings" and other associated proof may be submitted to EPA (per Sec. 80.93(a)(1)) prior to the official submittal of the entire baseline determination. EPA will attempt to review and approve, disapprove or otherwise comment on the petition, etc., prior to the deadline for baseline submittal. (iii) In the event that EPA does not comment on the petition prior to the deadline for baseline submittal, the refiner or importer must still comply with the applicable baseline submittal deadline. (4) If a baseline recalculation is required per Sec. 80.91(f), documentation and recalculation of all affected

baselines shall be submitted to EPA within 30 days of the previous baseline(s) becoming inaccurate due to the circumstances outlined in Sec. 80.91(f). (b) Submission content. (1) Individual baseline submissions shall include, at minimum, the information specified in this paragraph (b). (i) During its review and evaluation of the baseline submission, EPA may require a refiner or importer to submit additional information in support of the baseline determination. (ii) Additional information which may assist EPA during its review and evaluation of the baseline may be included at the submitter's discretion.

(2) Administrative information shall include: (i) Name and business address of the refiner or importer; (ii) Name, business address and business phone number of the company contact;

(iii) Address and physical location of each refinery, terminal or import facility;

(iv) Address and physical location where documents which are supportive of the baseline determination for each facility are kept; (3) The chief executive officer statement shall be: (i) A statement signed by the chief executive officer of the company, or designee, which states that: (A) The company is complying with the requirements as a refiner, blender or importer, as appropriate;

(B) The data used in the baseline determination is the extent of the data available for the determination of all required baseline fuel parameters;

(C) All calculations and procedures followed per Secs. 80.90 through 80.93 have been done correctly; (D) Proper adjustments have been made to the data or in the calculations, as applicable;

(E) The requirements and intentions of the rulemaking have been met in determining the baseline fuel parameters; and (F) The baseline fuel parameter values determined for each facility represent that facility's 1990 gasoline to the fullest extent possible. (ii) A refiner or importer which is permitted to utilize the parameter values specified in Sec. 80.91(c)(5), and

does so, shall submit a statement signed by the chief executive officer of the company, or designee, indicating that insufficient data exist for a baseline determination by the types of data allowed for that entity, as specified in Sec. 80.91.

(4) The auditor-related requirements are: (i) Name, address, telephone number and date of hire of each auditor hired for baseline verification, whether or not the auditor was retained through the baseline approval process. (ii) Identification of the auditor responsible for the verification. A copy of this auditor's qualification statement, per Sec. 80.92, must be included if the auditor has not been approved by EPA, per Sec. 80.92;

(iii) Indication of the primary analyst(s) involved in each refinery's baseline verification; and

(iv) The signed auditor verification statement, per Sec. 80.92. (5) The following baseline information for each refinery, refiner or importer, as applicable, shall be provided: (i) Individual baseline fuel parameter values, on an oxygenated and non-oxygenated basis, and on a summer and winter basis, per Sec. 80.91; (ii) Individual baseline exhaust emissions shall be shown separately, on a summer, winter and annual average basis (per Sec. 80.90) as follows:

(A) Simple model exhaust benzene emissions; (B) Complex model exhaust benzene emissions; (C) Complex model exhaust toxics emissions, for Phase I; (D) Complex model exhaust NO<INF>X emissions, for Phase I, using oxygenated individual baseline fuel parameters; (E) Complex model exhaust NO<INF>X emissions, for Phase I, using non-oxygenated individual baseline fuel parameters; (F) Complex model exhaust toxics emissions, for Phase II; (G) Complex model exhaust NO<INF>X emissions, for Phase II, using oxygenated individual baseline fuel parameters; and (H) Complex model exhaust NO<INF>X emissions, for Phase II, using non-oxygenated individual baseline fuel parameters; (iii) Individual 1990 baseline gasoline volumes, per Sec. 80.91, shall be shown separately on a

summer, winter and annual average basis; and

(iv) Blendstock-to-gasoline ratios for each calendar year 1990 through to 1993, per Sec. 80.102.

(6) Confidentiality claim.

(i) Upon approval of an individual baseline, EPA will publish the individual standards for each refinery, blender or importer in the Federal Register. Such information shall include baseline emissions as specified in Sec. 80.90 and 125% of the individual baseline values for sulfur, olefins and T90.

(ii) Information in the baseline submission which the submitter desires be considered confidential business information (per 40 CFR part 2, subpart B) must be clearly identified. Information specified in paragraph (b)(5) of this section shall not be considered confidential. (7) Information related to baseline determination as specified in Sec. 80.91 and paragraph (c) of this section. (c) Additional baseline submission requirements when Method 1-, 2- and/or 3-type data is utilized. All requirements of this paragraph shall be reported separately for each facility, unless the facilities are closely integrated, per Sec. 80.91. (1) General. The following information shall be provided: (i) The number of months in 1990 during which the facility was operating;

(ii) 1990 summer gasoline production volume, per Sec. 80.91, total and by grade, for all gasoline produced but not exported; (iii) 1990 winter gasoline production volume, per Sec. 80.91, total and by grade, for all gasoline produced, excluding gasoline exported; and

(iv) Whether this facility is actually two facilities which are closely integrated, per Sec. 80.91.

(2) Baseline values. The following shall be included for each fuel parameter for which a baseline value is required, per Sec. 80.91: (i) Narrative of the development of the baseline value of the fuel parameter, including discussion of the sampling and calculation methodologies,

technical judgment used, effects of petition results on calculated values, and any additional information which may assist EPA in its review of the baseline;

(ii) Identification of the data-type(s), per Sec. 80.91, used in the determination of a given fuel parameter; (iii) Identification of test method. If not per Sec. 80.46, include a narrative, explain differences and describing adequacy, per Sec. 80.91;

(iv) Documentation that the minimum sampling requirements per Sec. 80.91 have been met;

(v) Petition and narrative, if needed, for use of less than the minimum required data, per Sec. 80.91; (vi) Identification of instances of sample compositing per Sec. 80.91;

(vii) Identification of streams for which one or more parameter values were deemed negligible per Sec. 80.91; and (viii) Discussion of the calculation of oxygenated or nonoxygenated fuel parameter values from non-oxygenated or oxygenated values, respectively, per Sec. 80.91.

(3) Method 1. If Method 1-type data is utilized in the baseline determination, the following information on 1990 batches of gasoline, or shipments if not batch blended, are required by grade shall be provided:

(i) First and last sampling dates; (ii) The following shall be indicated separately on a summer and winter basis, by month:

(A) Number of months sampled;

(B) Number of 1990 batches, or shipments if not batch blended; (C) Total volume of all batches or shipments; (D) Number of batches or shipments sampled; (E) Total volume of all batches or shipments sampled; (F) Baseline fuel parameter value, per Sec. 80.91; and (iii) A showing that data was available on every batch of 1990 gasoline, if applicable, per Sec. 80.91 (b)(3) or (b)(4). (4) Method 2. If Method 2-type data is utilized in the baseline determination, the following information on each type of 1990 blendstock used in the refinery's gasoline are

required, by blendstock type shall be provided:

(i) First and last sampling dates; and (ii) The following shall be indicated separately on a summer and winter basis, by month:

(A) Number of months sampled;

(B) Each type of blendstock used in 1990 gasoline and total number of blendstocks. Include all blendstocks produced, purchased or otherwise received which were blended to produce gasoline within the facility. Identify all blendstocks not produced in the facility but used in the facility's 1990 gasoline;

(C) Total volume of each blendstock used in gasoline in 1990; (D) Identification of blendstock streams as batch or continuous; (E) Number of blendstock samples from continuous blendstock streams;

(F) Number of blendstock samples from batch processes, including volume of each batch sampled; and

(G) Baseline fuel parameter value, per Sec. 80.91. (5) Method 3, blendstock data. The following information on each type of post-1990 gasoline blendstock used in the refinery's gasoline are required, by blendstock type shall be provided: (i) First and last sampling dates; (ii) The following shall be indicated separately on a summer and winter basis, by month:

(A) Number of post-1990 months sampled; (B) Each type of blendstock used in 1990 gasoline and total number of blendstocks. Include all blendstocks produced, purchased or otherwise received which were blended to produce gasoline within the facility. Identify all blendstocks not produced in the facility but used in the facility's 1990 gasoline;

(C) Total volume of each blendstock used in gasoline in 1990; (D) Identification of post-1990 blendstock streams as batch or continuous;

(E) Number of post-1990 blendstock samples from continuous blendstock streams;

(F) Number of post-1990 blendstock samples from batch processes, including volume of each batch sampled; and (G) Baseline fuel parameter value, per Sec. 80.91; and (iii) Support documentation showing that the criteria of Sec. 80.91 for using Method 3-type blendstock data are met. (6) Method 3, post-1990 gasoline data. The following information on post-1990 batches of gasoline, or shipments if not batch blended, are required by grade:

(i) First and last sampling dates; (ii) The following shall be indicated separately for summer and winter production, by month:

(A) Number of post-1990 months sampled; (B) Number of post-1990 batches, or shipments if not batch blended; (C) Total volume of all post-1990 batches or shipments; (D) Number of post-1990 batches or shipments sampled; (E) Volume of each post-1990 batch or shipment sampled; and (F) Baseline fuel parameter value, per Sec. 80.91; and (iii) Support documentation showing that the criteria of Sec. 80.91 for using post-1990 gasoline data are met.

(7) Work-in-progress (WIP). All of the following must be included in support of a WIP adjustment (per Sec. 80.91(e)(5)): (i) Petition including identification of the specific baseline emission(s) or parameter for which the WIP adjustment is desired; (ii) Showing that all WIP criteria, per Sec. 80.91(e)(5), are met; (iii) Unadjusted and adjusted baseline fuel parameters, emissions and volume for the facility; and

(iv) Narrative, per Sec. 80.91 (e)(5). (8) Extenuating circumstances. All of the following must be included in support of an extenuating circumstance adjustment (per Sec. 80.91 (e)(6) through (e)(7)):

(i) Petition including identification of the allowable circumstance, per Sec. 80.91 (e)(6) through (e)(7); (ii) Showing that all applicable criteria, per Sec. 80.91 (e)(6) through (e)(7),

are met;

(iii) Unadjusted and adjusted baseline fuel parameters, emissions and volume for the facility; and

(iv) Narrative, per Sec. 80.91.

(9) Other baseline information. Narrative discussing any aspects of the baseline determination not already indicated per the requirements of this paragraph (c) shall be provided. (10) Refinery information. The following information, on a summer or winter basis, shall be provided:

(i) Refinery block flow diagram, showing principal refining units; (ii) Principal refining unit charge rates and capacities; (iii) Crude types utilized (names, gravities, and sulfur content) and crude charge rates; and

(iv) Information on the following units, if utilized in the refinery:

(A) Catalytic Cracking Unit: conversion, unit yields, gasoline fuel parameter values (per Sec. 80.91(a)(2)); (B) Hydrocracking Unit: unit yields, gasoline fuel parameter values (per Sec. 80.91(a)(2));

(C) Catalytic Reformer: unit yields, severities; (D) Bottoms Processing Units (including, but not limited to, coking, extraction and hydrogen processing): gasoline stream yields; (E) Yield structures for other principal units in the refinery (including but not limited to Alkylation, Polymerization, Isomerization, Etherification, Steam Cracking).

Secs. 80.94-80.100 [Reserved]

Sec. 80.101 Standards applicable to refiners and importers.

Any refiner or importer of conventional gasoline shall meet the standards specified in this section over the specified averaging period, beginning on January 1, 1995.

(a) Averaging period. The averaging period for the standards specified in this section shall be January 1 through December 31. (b) Conventional gasoline compliance standards--(1) Simple model standards. The simple model standards are the following: (i) Annual average exhaust

benzene emissions, calculated according to paragraph (g)(1)(i) of this section, shall not exceed the refiner's or importer's compliance baseline for exhaust benzene emissions; (ii) Annual average levels of sulfur shall not exceed 125% of the refiner's or importer's compliance baseline for sulfur; (iii) Annual average levels of olefins shall not exceed 125% of the refiner's or importer's compliance baseline for olefins; and (iv) Annual average values of T-90 shall not exceed 125% of the refiner's or importer's compliance baseline for T-90. (2) Optional complex model standards. Annual average levels of exhaust benzene emissions, weighted by volume for each batch and calculated using the applicable complex model under Sec. 80.45, shall not exceed the refiner's or importer's 1990 average exhaust benzene emissions.

(3) Complex model standards. Annual average levels of exhaust toxics emissions and NO<INF>X emissions, weighted by volume for each batch and calculated using the applicable complex model under Sec. 80.45, shall not exceed the refiner's or importer's 1990 average exhaust toxics emissions and NO<INF>X emissions, respectively. (c) Applicability of standards. (1) For each averaging period prior to January 1, 1998, a refiner or importer shall be subject to either the Simple Model or Optional Complex Model Standards, at their option, except that any refiner or importer shall be subject to: (i) The Simple Model Standards if the refiner or importer uses the Simple Model Standards for reformulated gasoline; or (ii) The Optional Complex Model Standards if the refiner or importer used the Complex Model Standards for reformulated gasoline. (2) Beginning January 1, 1998, each refiner and importer shall be subject to the Complex Model Standards for each averaging period. (d) Product to which standards apply. Any refiner for each refinery, or any importer, shall include in its compliance calculations:

(1) Any conventional gasoline produced or imported during the averaging period;

(2) Any non-gasoline petroleum products that are produced or imported and sold or

transferred from the refinery or group of refineries or importer during the averaging period, if required pursuant to Sec. 80.102(e)(2), unless the refiner or importer is able to establish in the form of documentation that the petroleum products were used for a purpose other than the production of gasoline within the United States;

(3) Any gasoline blending stock produced or imported during the averaging period which becomes conventional gasoline solely upon the addition of oxygenate;

(4)(i) Any oxygenate that is added to conventional gasoline, or gasoline blending stock as described in paragraph (d)(3) of this section, where such gasoline or gasoline blending stock is produced or imported during the averaging period;

(ii) In the case of oxygenate that is added at a point downstream of the refinery or import facility, the oxygenate may be included only if the refiner or importer can establish the oxygenate was in fact added to the gasoline or gasoline blendstock produced, by showing that the oxygenate was added by:

(A) The refiner or importer; or

(B) By a person other than the refiner or importer, provided that the refiner or importer:

(1) Has a contract with the oxygenate blender that specifies procedures to be followed by the oxygenate blender that are reasonably calculated to ensure blending with the amount and type of oxygenate claimed by the refiner or importer; and (2) Monitors the oxygenate blending operation to ensure the volume and type of oxygenate claimed by the refiner or importer is correct, through periodic audits of the oxygenate blender designed to assess whether the overall volumes and type of oxygenate purchased and used by the oxygenate blender are consistent with the oxygenate claimed by the refiner or importer and that this oxygenate was blended with the refiner's or importer's gasoline or blending stock, periodic sampling and testing of the gasoline

produced subsequent to oxygenate blending, and periodic inspections to ensure the contractual requirements imposed by the refiner or importer on the oxygenate blender are being met. (e) Product to which standards do not apply. Any refiner for each refinery, or any importer, shall exclude from its compliance calculations:

(1) Gasoline that was not produced at the refinery or was not imported by the importer;

(2) Blendstocks that have been included in another refiner's compliance calculations, pursuant to Sec. 80.102(e)(2) or otherwise; (3) Gasoline that meets the enforcement exemption for California gasoline under Sec. 80.81; and

(4) Gasoline that is exported.

(f) Compliance baseline determinations. (1) In the case of any refiner or importer for whom an individual baseline has been established under Sec. 80.91, the individual baseline for each parameter or emissions performance shall be the compliance baseline for that refiner or importer.

(2) In the case of any refiner or importer for whom the antidumping statutory baseline applies under Sec. 80.91, the anti-dumping statutory baseline for each parameter or emissions performance shall be the compliance baseline for that refiner or importer. (3) In the case of a party that is both a refiner and an importer, and for whom an individual 1990 baseline has not been established for the imported product under Sec. 80.91(b)(4), the compliance baseline for the imported product shall be the 1990 volume weighted average of all of the refiner's individual refinery baselines. (4) Any compliance baseline under paragraph (f) (1) or (3) of this section shall be adjusted for each averaging period as follows: (i) The 1990 equivalent conventional gasoline volume for an averaging period is calculated according to the following formula:

<GRAPHIC><TIF21>TR16FE94.021

where

V<INF>eq=the 1990 equivalent conventional gasoline volume V<INF>1990=the 1990 volume of gasoline as determined under Sec. 80.91(f)(1)

V<INF>r=the total volume of reformulated gasoline produced or imported by a refiner or importer during the averaging period excluding gasoline which meets the enforcement exemptions of Sec. 80.81 V<INF>c=the total volume of conventional gasoline produced or imported by a refiner or importer during the averaging period excluding gasoline which meets the enforcement exemptions of Sec. 80.81

(ii)(A) If the total volume of the conventional gasoline produced or imported by the refiner or importer during the averaging period is equal to or less than that refiner's or importer's 1990 equivalent conventional gasoline volume, the compliance baseline for each parameter shall be that refiner's or importer's individual 1990 baseline; or

(B) If the total volume of the conventional gasoline produced or imported by the refiner or importer is greater than that refiner's or importer's 1990 equivalent conventional gasoline volume, the compliance baseline for each parameter or emissions performance shall be calculated according to the following formula:

<GRAPHIC><TIF22>TR16FE94.022

where

CB<INF>i=the compliance baseline value for parameter or emissions product i

B<INF>i=the refiner's or importer's individual baseline value for parameter i calculated according to the methodology in Sec. 80.91 V<INF>eq=the 1990 equivalent conventional gasoline volume for the averaging period, calculated pursuant to paragraph (f)(4)(iii) of this section

DB<INF>i=the anti-dumping statutory baseline value for parameter i, as specified at Sec. 80.91(c)(5)

V<INF>c=the total volume of conventional gasoline and other products included under

paragraph (d) of this section produced or imported by a refiner or importer during the averaging period

(g) Compliance calculations. (1) In the case of any refiner or importer subject to an individual refinery baseline, the annual average value for each parameter or emissions performance during the averaging period, calculated according to the following methodologies, shall be less than or equal to the refiner's or importer's standard under paragraph (b) of this section for that parameter.

(i) Exhaust benzene emissions under the Simple Model for an averaging period are calculated as follows:

EXHBEN=1.884+(0.949 x BZ)+(0.113 x (AR-BZ))

where

EXHBEN=the average exhaust benzene emissions for the averaging period BZ=the average benzene content for the averaging period AR=the average aromatics content for the averaging period

(ii) The average value for each parameter for an averaging period shall be calculated as follows:

<GRAPHIC><TIF23>TR16FE94.023

where

APARM=the average value for the parameter being evaluated V<INF>i=the volume of conventional gasoline and other products included under paragraph (d) of this section, in batch i PARM<INF>i=the value of the parameter being evaluated for batch i as determined in accordance with the test methods specified in Sec. 80.46 n=the number of batches of conventional gasoline and other products included under paragraph (d) of this section produced or imported during the averaging period

SG<SUP>i=specific gravity of batch i (only applicable for properties determined on a weight percent or ppm basis)

(iii) Exhaust benzene emissions performance for each batch shall be calculated in accordance with the applicable model under Sec. 80.45. (iv) Exhaust toxics emissions performance for each batch shall be calculated in accordance with the applicable model under Sec. 80.45. (v) Exhaust NO<INF>X emissions performance for each batch shall be calculated in accordance with the applicable model under Sec. 80.45. (2) In the case of any refiner or importer subject to the antidumping statutory baseline, the refiner or importer shall determine compliance using the following methodology: (i) Calculate the compliance total for the averaging period for sulfur, T-90, olefins, exhaust benzene emissions, exhaust toxics and exhaust NO<INF>X emissions, as applicable, based upon the anti-dumping statutory baseline value for that parameter using the formula specified at Sec. 80.67.

(ii) Calculate the actual total for the averaging period for sulfur, T-90, olefins, exhaust benzene emissions, exhaust toxics and exhaust NO<INF>X emissions, as applicable, based upon the value of the parameter for each batch of conventional gasoline and gasoline blendstocks, if applicable, using the formula specified at Sec. 80.67. (iii) The actual total for exhaust benzene emissions, exhaust toxics and exhaust NO<INF>X emissions, shall not exceed the compliance total, and the actual totals for sulfur, olefins and T-90 shall not exceed 125% of the compliance totals, as required under the applicable model.

(3) In the case of any batch of gasoline that is produced by combining blendstock with gasoline, where the gasoline portion of the blend is not included in the compliance calculation, the emissions performance for exhaust benzene, exhaust toxics, and exhaust NO<INF>X emissions for the blendstock shall be: (i)(A) The emissions performance of a gasoline that

would be produced by combining the blendstock used at the volume percentage used, with a gasoline that has properties that are equal to the refiner's or importer's anti-dumping baseline; minus (B) The emissions performance of a gasoline that has properties that are equal to the refiner's or importer's anti-dumping baseline. (ii) The volume weighted net emissions performance for exhaust benzene, exhaust toxics, and exhaust NO<INF>X emissions, as applicable, for all batches of gasoline that are produced during the averaging period by combining blendstock with gasoline, shall be equal to or less than zero.

(iii) The value of those properties measured on a weight percent or ppm basis shall be adjusted for the specific gravity of the gasoline and blendstocks used for the purposes of calculations under paragraph (g)(3) of this section.

(iv) For blends which contain greater than 1.50 volume percent ethanol, the RVP of the final blend shall be 1.0 psi greater than the RVP of the base gasoline and blendstocks without the ethanol for the purposes of calculations under paragraph (g)(3) of this section. (v) For blends containing less than 1.50 volume percent ethanol, the RVP of the base gasoline and blendstocks without ethanol shall be used for the purposes of calculations under paragraph (g)(3) of this section.

(4) Compliance calculations under this subpart E shall be based on computations to the same degree of accuracy that are specified in establishing individual baselines under Sec. 80.91. (5) The emissions performance of gasoline that has an RVP that is equal to or less than the RVP required under Sec. 80.27 (``summer gasoline") shall be determined using the applicable summer complex model under Sec. 80.45.

(6) The emissions performance of gasoline that has an RVP greater than the RVP required under Sec. 80.27 (``winter gasoline") shall be determined using the applicable winter complex model under Sec. 80.45, using an RVP of 8.7 psi for compliance calculation purposes under this

subpart E.

(7)(i) For the 1998 averaging period any refiner or importer may elect to determine compliance with the requirement for exhaust NO<INF>X emissions performance either with or without the inclusion of oxygenates in its compliance calculations, in accordance with Sec. 80.91(e)(4), provided that the baseline exhaust NO<INF>X emissions performance is calculated using the same with- or without-oxygen approach.

(ii)(A) Any refiner or importer must use the with- or withoutoxygen approach elected under paragraph (g)(7)(i) of this section for all subsequent averaging periods; except that (B) In the case of any refiner or importer who elects to determines compliance for the calendar year 1998 averaging period without the inclusion of oxygenates, such refiner or importer may elect to include oxygenates in its compliance calculations for the 1999 averaging period.

(iii) Any refiner or importer who elects to use the with-oxygen approach under paragraph (g)(7)(ii)(B) of this section must use this approach for all subsequent averaging periods. (h) Refinery grouping for determining compliance. (1) Any refiner that operates more than one refinery may: (i) Elect to achieve compliance individually for the refineries; or (ii) Elect to achieve compliance on an aggregate basis for a group, or for groups, of refineries, some of which may be individual refineries; provided that

(iii) Compliance is achieved for each refinery separately or as part of a group; and

(iv) The data for any refinery is included only in one compliance calculation.

(2) Any election by a refiner to group refineries under paragraph (h)(1) of this section shall:

(i) Be made as part of the report for the 1995 averaging period required by Sec. 80.105;

(ii) Apply for the 1995 averaging period and for each subsequent averaging period, and may not thereafter be changed; and (iii) Apply for purposes of the blendstock tracking and

accounting provisions under Sec. 80.102.

(3)(i) Any standards under this section shall apply, and compliance calculations shall be made, separately for each refinery or refinery group; except that

(ii) Any refiner that produces conventional gasoline for distribution to a specified geographic area which is the subject of a petition approved by EPA pursuant to Sec. 80.91(f)(3) shall achieve compliance separately for gasoline supplied to such specified geographic area.

(i) Sampling and testing. (1) Any refiner or importer shall for each batch of conventional gasoline, and other products if included paragraph (d) of this section, prior to such gasoline or product leaving the refinery or import facility: (i)(A) Determine the value of each of the properties required for determining compliance with the standards that are applicable to the refiner or importer, by collecting and analyzing a representative sample of gasoline or blendstock taken from the batch, using the methodologies specified in Sec. 80.46; except that (B) Any refiner that produces gasoline by combining blendstock with gasoline that has been included in the compliance calculations of another refiner or of an importer may for such gasoline meet this sampling and testing requirement by collecting and analyzing a representative sample of the blendstock used subsequent to each receipt of such blendstock if the compliance calculation method specified in paragraph (g)(3) of this section is used. (ii) Assign a number to the batch (the ``batch number''), as specified in Sec. 80.65(d)(3);

(2) For the purposes of meeting the sampling and testing requirements under paragraph (i)(1) of this section, any refiner or importer may, prior to analysis, combine samples of gasoline collected from more than one batch of gasoline or blendstock (``composite sample''), and treat such composite sample as one batch of gasoline or blendstock provided that the refiner or importer: (i) Meets each of the requirements specified in Sec. 80.91(d)(4)(iii) for the samples

contained in the composite sample;

(ii) Combines samples of gasoline that are produced or imported over a period no longer than one month; (iii) Uses the total of the volumes of the batches of gasoline that comprise the composite sample, and the results of the analyses of the composite sample, for purposes of compliance calculations under paragraph (g) of this section; and

(iv) Does not combine summer and winter gasoline, as specified under paragraphs (g) (5) and (6) of this section, in a composite sample.

Sec. 80.102 Controls applicable to blendstocks.

(a) For the purposes of this subpart E: (1) All of the following petroleum products that are produced by a refiner or imported by an importer shall be considered ``applicable blendstocks'':

(i) Reformate;

(ii) Light coker naphtha;

(iii) FCC naphtha;

(iv) Benzene/toluene/xylene;

(v) Pyrolysis gas;

(vi) Aromatics;

(vii) Polygasoline; and

(viii) Dimate; and

(2) Any gasoline blendstock with properties such that, if oxygenate only is added to the blendstock the resulting blend meets the definition of gasoline under Sec. 80.2(c), shall be considered gasoline.

(b)(1) Any refiner or importer of conventional gasoline or blendstocks shall determine the baseline blendstock-to-gasoline ratio for each calendar year 1990 through 1993 according to the

following formula:

<GRAPHIC><TIF24>TR16FE94.024

Where:

BG<INF>by=Blendstock-to-gasoline ratio for base year V<INF>bs=Volume of applicable blendstock produced or imported and transferred to others during the calendar year, and used in to produce gasoline

V<INF>g=Volume of gasoline produced or imported during the calendar year

(2)(i) Only those volumes of applicable blendstocks for which the refiner is able to demonstrate the blendstock was used in the production of gasoline may be included in baseline blendstock-togasoline ratios under paragraph (b)(1) of this section. (ii) The baseline volume data for applicable blendstocks and gasoline shall be confirmed through the baseline audit requirements specified in Sec. 80.92 and submitted in accordance with the requirements of Sec. 80.93.

(c) Any refiner or importer shall calculate the baseline cumulative blendstock-to-gasoline ratio according to the following formula:

<GRAPHIC><TIF25>TR16FE94.025

Where:

BGC<INF>base=Baseline cumulative blendstock-to-gasoline ratio V<INF>bs, i=Volume of applicable blendstock produced or imported and transferred to others during calendar year i

V<INF>g, i=Volume of gasoline produced or imported during calendar year i

i=each year, 1990 through 1993, for which a blendstock-to-gasoline ratio is calculated under paragraph (b) of this section

(d)(1) For each averaging period, any refiner or importer shall: (i) Determine the averaging period blendstock-to-gasoline ratio according to the following formula:

<GRAPHIC><TIF26>TR16FE94.026

Where:

BG<INF>a=Blendstock-to-gasoline ratio for the current averaging period V<INF>bs=Volume of applicable blendstock produced or imported during the averaging period and subsequently transferred to others V<INF>g=Volume of conventional gasoline, reformulated gasoline, and RBOB produced or imported during the averaging period

(ii) For each averaging period until January 1, 1998, calculate the peak year blendstock-to-gasoline ratio percentage change according to the following formula:

<GRAPHIC><TIF27>TR16FE94.027

Where:

PC<INF>p=Peak year blendstock-to-gasoline ratio percentage change

BG<INF>a=Blendstock-to-gasoline ratio for the averaging period calculated under paragraph (d)(1)(i) of this section BG<INF>p=Largest one year blendstock-to-gasoline ratio calculated under paragraph (b) of this section

(2) Beginning on January 1, 1998, for each averaging period any refiner or importer shall:

(i) Determine the running cumulative compliance period blendstockto -gasoline ratio according to the following formula:

<GRAPHIC><TIF28>TR16FE94.028

Where:

BGC<INF>comp=Running cumulative compliance period blendstock-togasoline ratio V<INF>bs, i=Volume of applicable blendstock produced or imported and transferred to others during averaging period i V<INF>g, i=Volume of conventional gasoline, reformulated gasoline, and RBOB produced or imported during averaging period i i=The current averaging period, and

each of the three immediately preceding averaging periods

(ii) Calculate the cumulative blendstock-to-gasoline ratio percentage change according to the following formula:

<GRAPHIC><TIF29>TR16FE94.029

Where:

PC<INF>c=Cumulative blendstock-to-gasoline ratio percentage change

BGC<INF>comp=Running cumulative compliance period blendstock-togasoline ratio as determined in paragraph (d)(2)(i) of this section BGC<INF>base=Baseline cumulative blendstock-to-gasoline ratio calculated under paragraph (c) of this section

(3) For purposes of this paragraph (d), all applicable blendstocks produced or imported shall be included, except those for which the refiner or importer has sufficient evidence in the form of documentation that the blendstocks were: (i) Exported;

(ii) Used for other than gasoline blending purposes; (iii) Transferred to a refiner that used the blendstock as a ``feedstock'' in a refining process during which the blendstock underwent a substantial chemical or physical transformation; or (iv) Transferred between refineries which have been grouped pursuant to Sec. 80.101(h) by a refiner for the purpose of determining compliance under this subpart.

(e)(1) Any refiner or importer shall have exceeded the blendstockto -gasoline ratio percentage change threshold if: (i) The peak year blendstock-to-gasoline ratio percentage change calculated under paragraph (d)(1)(ii) of this section is more than ten; or

(ii) Beginning on January 1, 1998, the cumulative blendstock-togasoline ratio percentage change calculated under paragraph (d)(2)(ii) of this section is more than ten.

(2) Any refiner or importer that exceeds the blendstock-to-gasoline ratio percentage change

threshold shall, without further notification: (i) Include all blendstocks produced or imported and transferred to others in its compliance calculations for two averaging periods beginning on January 1 of the averaging period subsequent to the averaging period when the exceedance occurs; (ii) Provide transfer documents to the recipient of such blendstock that contain the language specified at Sec. 80. 106(b); and (iii) Transfer such blendstock in a manner such that the ultimate blender of such blendstocks has a reasonable basis to know that such blendstock has been accounted for.

(3) Any refiner or importer that has previously exceeded the blendstock-to-gasoline ratio percentage change threshold, and subsequently exceeds the threshold for an averaging period and is not granted a waiver pursuant to paragraph (f)(2)(i) of this section, shall, without further notification, meet the requirements specified in paragraphs (e)(2) (i) through (iii) of this section for four averaging periods, beginning on January 1 of the averaging period following the averaging period when the subsequent exceedance occurs. (f)(1) The refiner or importer blendstock accounting requirements specified under paragraph (e) of this section shall not apply in the case of any refiner or importer:

(i) Whose 1990 baseline value for each regulated fuel property and emission performance, as determined in accordance with Secs. 80.91 and 80.92, is less stringent than the anti-dumping statutory baseline value for that parameter or emissions performance; (ii) Whose averaging period blendstock-to-gasoline ratio, calculated according to paragraph (d)(1)(i) of this section, is equal to or less than .0300; or

(iii) Who obtains a waiver from EPA, provided that a petition for such a waiver is filed no later than fifteen days following the end of the averaging period for which the blendstock-to-gasoline ratio percentage change threshold is exceeded. (2)(i) EPA may grant

the waiver referred to in paragraph (f)(1)(iii) of his section if the level of blendstock production was the result of extreme or unusual circumstances (e.g., a natural disaster or act of God) which clearly are outside the control of the refiner or importer, and which could not have been avoided by the exercise of prudence, diligence, and due care. (ii) Any petition filed under paragraph (f) of this section shall include information which describes the extreme or unusual circumstance which caused the increased volume of blendstock produced or imported, the steps taken to avoid the circumstance, and the steps taken to remedy or mitigate the effect of the circumstance. (g) Notwithstanding the requirements of paragraphs (a) through (f) of this section, any refiner or importer that transfers applicable blendstock to another refiner or importer with a less stringent baseline requirement, either directly or indirectly, for the purpose of evading a more stringent baseline requirement, shall include such blendstock(s) in determining compliance with the applicable requirements of this subpart.

Sec. 80.103 Registration of refiners and importers.

Any refiner or importer of conventional gasoline must register with the Administrator in accordance with the provisions specified at Sec. 80.76.

Sec. 80.104 Record keeping requirements.

Any refiner or importer shall maintain records containing the information as required by this section. (a) Beginning in 1995, for each averaging period: (1) Documents containing the information specified in paragraph (a)(2) of this section shall be obtained for: (i) Each batch of conventional gasoline, and blendstock if blendstock accounting is required under Sec. 80.102(e)(2); or (ii) Each batch of blendstock received in the case of any refiner that determines compliance on the basis of blendstocks properties under Sec. 80.101(g)(3).

(2)(i) The results of tests performed in accordance with Sec. 80.101(i);

(ii) The volume of the batch;

(iii) The batch number;

(iv) The date of production, importation or receipt; (v) The designation regarding whether the batch is summer or winter gasoline;

(vi) The product transfer documents for any conventional gasoline produced or imported;

(vii) The product transfer documents for any conventional gasoline received;

(viii) For any gasoline blendstocks received by or transferred from a refiner or importer, documents that reflect: (A) The identification of the product; (B) The date the product was transferred; and (C) The volume of product;

(ix) In the case of any refinery-produced or imported products listed in Sec. 80.102(a) that were transferred for other than gasoline blending purposes, documents which demonstrate that other purpose; and (x) In the case of oxygenate that is added by a person other than the refiner or importer under Sec. 80.101(d)(4)(ii)(B), documents that support the volume of oxygenate claimed by the refiner or importer, including the contract with the oxygenate blender and records relating to the audits, sampling and testing, and inspections of the oxygenate blender operation.

(b) Any refiner or importer shall retain the documents required in this section for a period of five years from the date the conventional gasoline or blendstock is produced or imported, and deliver such documents to the Administrator of EPA upon the Administrator's request.

Sec. 80.105 Reporting requirements.

(a) Beginning with the 1995 averaging period, and for each subsequent averaging period, any refiner for each refinery or group of refineries at which any conventional gasoline is produced, and any importer that imports any conventional gasoline, shall submit to the Administrator a report which contains the following information: (1) The total gallons of conventional

gasoline produced or imported;

(2) The total gallons of applicable blendstocks produced or imported and transferred to others;

(3) The total gallons of blendstocks included in compliance calculations pursuant to Sec. 80.102(e)(2); (4) The average exhaust benzene emissions, sulfur, olefins and T90 if using the Simple Model; exhaust benzene emissions if using the optional Complex Model; or exhaust toxic emissions and NO<INF>X emissions if using the Complex Model, as applicable, calculated in accordance with Sec. 80.101;

(5) The following information for each batch of conventional gasoline or batch of blendstock included under paragraph (a) of this section:

(i) The batch number;

(ii) The date of production;

(iii) The volume of the batch;

(iv) The grade of gasoline produced (i.e., premium, mid-grade, or regular); and

(v) The properties, pursuant to Sec. 80.101(i); and (6) Such other information as EPA may require. (b) The reporting requirements of paragraph (a) of this section do not apply in the case of any conventional gasoline or gasoline blendstock that is excluded from a refiner's or importer's compliance calculation pursuant to Sec. 80.101(e). (c) For each averaging period, each refiner and importer shall cause to be submitted to the Administrator of EPA, by May 30 of each year, a report in accordance with the requirements for the Attest Engagements of Secs. 80.125 through 80.131. (d) The report required by paragraph (a) of this section shall be: (1) Submitted on forms and following procedures specified by the Administrator of EPA;

(2) Submitted to EPA by the last day of February each year for the prior calendar year averaging period; and (3) Signed and certified as correct by the owner or a responsible

corporate officer of the refiner or importer.

Sec. 80.106 Product transfer documents.

(a)(1) On each occasion when any person transfers custody or title to any conventional gasoline, the transferor shall provide to the transferee documents which include the following information: (i) The name and address of the transferor; (ii) The name and address of the transferee; (iii) The volume of gasoline being transferred; (iv) The location of the gasoline at the time of the transfer; (v) The date of the transfer;

(vi) In the case of transferors or transferees who are refiners or importers, the EPA-assigned registration number of those persons; and (vii) The following statement: ``This product does not meet the requirements for reformulated gasoline, and may not be used in any reformulated gasoline covered area."

(2) The requirements of paragraph (a)(1) of this section apply to product that becomes gasoline upon the addition of oxygenate only. (b) On each occasion when any person transfers custody or title to any blendstock that has been included in the refiner's or importer's compliance calculations under Sec. 80.102(e)(2), the transferor shall provide to the transferee documents which include the following statement: ``For purposes of the Anti-Dumping requirements under 40 CFR Part 80, Subpart E, this blendstock has been accounted for by the refiner that produced it, and must be excluded from any subsequent compliance calculations."

Secs. 80.107-80.124 [Reserved]

Subpart F--Attest Engagements

Sec. 80.125 Attest engagements.

(a) Any refiner, importer, and oxygenate blender subject to the requirements of this subpart F shall engage an independent certified public accountant, or firm of such accountants (hereinafter

referred to in this subpart F as ``CPA''), to perform an agreed-upon procedures attestation engagement of the underlying documentation that forms the basis of the reports by Secs. 80.75 and 80.104. (b) The CPA shall perform the attestation engagements in accordance with the Statements on Standards for Attestation Engagements. (c) The CPA may complete the requirements of this subpart F with the assistance of internal auditors who are employees or agents of the refiner, importer, or oxygenate blender, so long as such assistance is in accordance with the Statements on Standards for Attestation Engagements.

(d) Notwithstanding the requirements of paragraph (a) of this section, any refiner, importer, or oxygenate blender may satisfy the requirements of this subpart F if the requirements of this subpart F are completed by an auditor who is an employee of the refiner, importer, or oxygenate blender, provided that such employee: (1) Is an internal auditor certified by the Institute of Internal Auditors, Inc. (hereinafter referred to in this subpart F as ``CIA''); and

(2) Completes the internal audits in accordance with the Codification of Standards for the Professional Practice of Internal Auditing.

(e) Use of a CPA or CIA who is debarred, suspended, or proposed for debarment pursuant to the Governmentwide Debarment and Suspension Regulations, 40 CFR Part 32, or the Debarment, Suspension, and Ineligibility Provisions of the Federal Acquisition Regulations, 48 CFR part 9, subpart 9.4, shall be deemed in noncompliance with the requirements of this section.

(f) The following documents are incorporated by reference: the Statements on Standards for Attestation Engagements, Codification of Statements on Auditing Standards, written by the American Institute of Certified Public Accountants, Inc., 1991, and published by the Commerce Clearing House, Inc., Identification Number 059021, and the Codification of Standards for the Professional Practice of Internal Auditing, written and published by the Institute of Internal

Auditors, Inc., 1989, Identification Number ISBN 0-89413-207-5. These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the Statements on Standards for Attestation Engagements may be obtained from the American Institute of Certified Public Accountants, Inc., 1211 Avenue of the Americas, New York, New York 10036, and copies of the Codification of Standards for the Professional Practice of Internal Auditing may be obtained from the Institute of Internal Auditors, Inc., 249 Maitland Avenue, Altamonte Springs, Florida 32701-4201. Copies may be inspected at the U.S. Environmental Protection Agency, Office of the Air Docket, 401 M Street, SW., Washington, DC., or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington DC.

Sec. 80.126 Definitions.

The following definitions shall apply for the purposes of this subpart F:

(a) Averaging compliance records shall include the calculations used to determine compliance with relevant standards on average, for each averaging period and for each quantity of gasoline for which standards must be achieved separately. (b) Credit trading records shall include worksheets and EPA reports showing actual and complying totals for oxygen and benzene; credit calculation worksheets; contracts; letter agreements; and invoices and other documentation evidencing the transfer of credits. (c) Designation records shall include laboratory analysis reports that identify whether gasoline meets the requirements for a given designation; operational and accounting reports of product storage; and product transfer documents.

(d) Oxygenate blender records shall include laboratory analysis reports; refiner, importer and oxygenate blender contracts; quality assurance program records; product transfer documents; oxygenate purchasing, inventory, and usage records; and daily tank inventory gauging reports,

meter tickets, and product transfer documents. (e) Product transfer documents shall include documents that reflect the transfer of ownership or physical custody of gasoline or blendstock, including invoices, receipts, bills of lading, manifests, and pipeline tickets.

(f) A tender means the physical transfer of custody of a volume of gasoline or other petroleum product all of which has the same identification (reformulated gasoline, conventional gasoline, RBOB, and other non-finished gasoline petroleum products), and characteristics (time and place of use restrictions for reformulated gasoline). (g) Volume records shall include summaries of gasoline produced or imported that account for the volume of each type of gasoline produced or imported. The volumes shall be based on tank gauges or meter reports and temperature adjusted to 60 degrees Fahrenheit.

Sec. 80.127 Sample size guidelines.

In performing the attest engagement, the auditor shall sample relevant populations to which agreed-upon procedures will be applied using the methods specified in this section, which shall constitute a representative sample.

(a) Sample items shall be selected in such a way as to comprise a simple random sample of each relevant population; and (b) Sample size shall be determined using one of the following options:

(1) Option 1. Determine the sample size using the following table:

Sample Size, Based Upon Population Size

No. in population (N)	Sample size
66 and larger	29
41-65	25
26-40	20
0-25	N or 19, whichever is smaller

(2) Option 2. Determine the sample size in such a manner that the sample size is equal to that

which would result by using the following parameters and standard statistical methodologies:

Confidence Level--95%

Expected Error Rate--0%

Maximum Tolerable Error Rate--10%

(3) Option 3. The auditor may use some other form of sample selection and/or some other method to determine the sample size, provided that the resulting sample affords equal or better strength of inference and freedom from bias (as compared with paragraphs (b)(1) and (2) of this section), and that the auditor summarizes the substitute methods and clearly demonstrates their equivalence in the final report on the audit.

Sec. 80.128 Agreed upon procedures for refiners and importers.

The following are the minimum attest procedures that shall be carried out for each refinery and importer. Agreed upon procedures may vary from the procedures stated in this section due to the nature of the refiner's or importer's business or records, provided that any refiner or importer desiring to modify procedures obtains prior approval from EPA.

(a) Read the refiner's or importer's reports filed with EPA for the previous year as required by Secs. 80.75 and 80.105. (b) Obtain a gasoline inventory reconciliation analysis for the current year from the refiner or importer which includes reformulated gasoline, RBOB, conventional gasoline, and non-finished-gasoline petroleum products.

(1) Test the mathematical accuracy of the calculations contained in the analysis.

(2) Agree the beginning and ending inventories to the refiner's or importer's perpetual inventory records. (c) Obtain separate listings of all tenders during the current year of reformulated gasoline, RBOB, conventional gasoline, and nonfinished -gasoline petroleum products.

(1) Test the mathematical accuracy of the calculations contained in the listings.

(2) Agree the listings of tenders' volumes to the gasoline inventory reconciliation in paragraph (b) of this section. (3) Agree the listings of tenders' volumes, where applicable, to the EPA reports.

(d) Select a representative sample from the listing of reformulated gasoline tenders, and for this sample: (1) Agree the volumes to the product transfer documents; (2) Compare the product transfer documents designation for consistency with the time and place, and compliance model designations for the tender (VOC-controlled or non-VOC-controlled, VOC region for VOC-controlled, OPRG versus non-OPRG, summer or winter gasoline, and simple or complex model certified); and (3) Trace back to the batch or batches in which the gasoline was produced or imported. Obtain the refiner's or importer's internal laboratory analyses for each batch and compare such analyses for consistency with the analyses results reported to EPA and to the time and place designations for the tender's product transfer documents. (e) Select a representative sample from the listing of RBOB tenders, and for this sample:

(1) Agree the volumes to the original product transfer documents; (2) Determine that the requisite contract was in place with the downstream blender designating the required blending procedures, or that the refiner or importer accounted for the RBOB using the assumptions in Sec. 80.72(a)(9);

(3) Review the product transfer documents for the indication of the type and amount of oxygenate required to be added to the RBOB; (4) Trace back to the batch or batches in which the RBOB was produced or imported. Obtain refiner's or importer's internal lab analysis for each batch and agree the consistency of the type and volume of oxygenate required to be added to the RBOB with that indicated in applicable tender's product transfer documents; and (5) Agree the sampling and testing frequency of the refiner's or importer's downstream oxygenated blender quality assurance program with the sampling and testing rates as required in Sec. 80.72. (f)

Select a representative sample of reformulated gasoline and RBOB batches produced by computerized in-line blending, and for this sample:

(1) Obtain the composite sample internal laboratory analyses results; and

(2) Agree the results of the internal laboratory analyses to the quarterly batch information submitted to the EPA. (g) Select a representative sample from the listing of the tenders of conventional gasoline and conventional gasoline blendstock that becomes gasoline through the addition of oxygenate only, and for this sample:

(1) Agree the volumes to the product transfer documents; (2) For a representative sample of tenders, trace back to the batch or batches in which the gasoline was produced or imported. Obtain the refiner's or importer's internal laboratory analyses for each batch and compare such analyses for consistency with the analyses results reported to EPA; and

(3) Where the refiner or importer has included oxygenate that is blended downstream of the refinery or import facility in its compliance calculations in accordance with Sec. 80.101(d)(4)(ii), obtain a listing of each downstream oxygenate blending operation from which the refiner or importer is claiming oxygenate for use in compliance calculations, and for each such operation:

(i) Determine if the refiner or importer had a contract in place with the downstream blender during the period oxygenate was blended; (ii) Determine if the refiner or importer has records reflecting that it conducted physical inspections of the downstream blending operation during the period oxygenate was blended; (iii) Obtain a listing from the refiner or importer of the batches of conventional gasoline or conventional sub-octane blendstock, and the compliance calculations for which include oxygenate blended by the downstream oxygenate blender, and test the mathematical accuracy of the calculations contained in this listing; (iv) Obtain a listing from the downstream oxygenate blender of the oxygenate blended with conventional gasoline or

sub-octane blendstock that was produced or imported by the refiner or importer. Test the mathematical accuracy of the calculations in this listing. Agree the overall oxygenate blending listing obtained from the refiner or importer with the listing obtained from the downstream oxygenate blender. Select a representative sample of oxygenate blending listing obtained from the downstream oxygenate blender, and for this sample: (A) Using product transfer documents, determine if the oxygenate was blended with conventional gasoline or conventional sub-octane blendstock that was produced by the refiner or imported by the importer; and

(B) Agree the oxygenate volume with the refiner's or importer's listing of oxygenate claimed for this gasoline; (v) Obtain a listing of the sampling and testing conducted by the refiner or importer over the downstream oxygenate blending operation. Select a representative sample of the test results from this listing, and for this sample agree the tested oxygenate volume with the oxygenate use listings from the refiner or importer, and from the oxygenate blender; and

(vi) Obtain a copy of the records reflecting the refiner or importer audit over the downstream oxygenate blending operation. Review these records for indications that the audit included review of the overall volumes and type of oxygenate purchased and used by the oxygenate blender to be consistent with the oxygenate claimed by the refiner or importer and that this oxygenate was blended with the refiner's or importer's gasoline or blending stock. (h) In the case of a refiner or importer that is not exempt from blendstock tracking under Sec. 80.102(f): (1) Obtain listings for those tenders of non-finished-gasoline classified by the refiner or importer as: (i) Applicable blendstock which is included in the refiner's or importer's blendstock tracking calculations pursuant to Sec. 80.102(b) through (d);

(ii) Applicable blendstock which is exempt pursuant to Sec. 80.102(d)(3) from inclusion in the refiner's or importer's blendstock tracking calculations pursuant to Sec. 80.102 (b) through (d); and

(iii) All other non-finished-gasoline petroleum products. (2) Test the mathematical accuracy of the calculations contained in the analysis.

(3) Agree the listings of tenders' volumes to the gasoline inventory reconciliation in paragraph (b) of this section. (4) Agree the EPA report for the volume classified as applicable blendstock pursuant to the requirements of Sec. 80.102. (5) Select a representative sample from the listing of applicable blendstock which is reported to EPA, and for such sample: (i) Agree the volumes to records supporting the transfer of the tender to another person; and

(ii) Trace back to the batch or batches in which the non-finishedgasoline petroleum product was produced or imported. Obtain the refiner's or importer's internal laboratory analysis for each batch and compare such analysis for consistency with the product type assigned by the refiner or importer (e.g., reformate, light coker naphtha, etc.), and that this product type is included in the applicable blendstock list at Sec. 80.102(a).

(6) Select a representative sample from the listing of applicable blendstock which is exempt from inclusion in the blendstock tracking report to EPA, and for such sample:

(i) Agree the volumes to records supporting the transfer of the tender to another person;

(ii) Trace back to the batch or batches in which the non-finishedgasoline petroleum product was produced or imported. Obtain the refiner's or importer's internal laboratory analysis for each batch and compare such analysis for consistency with the product type assigned by the refiner or importer (e.g., reformate, light coker naphtha, etc.), and that this product type is included in the applicable blendstock list at Sec. 80.102(a); and

(iii) Obtain the documents that demonstrate the purpose for which the product was used, and agree that the documented purpose is one of those specified at Sec. 80.102(d)(3).

(7) Select a representative sample from the listing of all other non-finished-gasoline petroleum

products, and for such sample: (i) Agree the volumes to records supporting the transfer of the tender to another person;

(ii) Trace back to the batch or batches in which the non-finishedgasoline petroleum product was produced or imported. Obtain the refiner's or importer's internal laboratory analysis for each batch and compare such analysis for consistency with the product-type assigned by the refiner or importer (e.g., alkylate, isobutane, etc.), and agree that this product type is excluded from the applicable blendstock list at Sec. 80.102(a).

(i) In the case of a refiner or importer required to account for blendstocks produced or imported under Sec. 80.102(e)(2): (1) Obtain listings for those tenders of non-finished-gasoline tenders classified by the refiner or importer as: (i) Blendstock which is included in the compliance calculations for the refinery or importer; and

(ii) All other non-finished-gasoline petroleum products; (2) Test the mathematical accuracy of the calculations contained in the listings under paragraph (i)(1) of this section; (3) Agree the listings of tenders' volumes to the gasoline inventory reconciliation in paragraph (b) of this section; (4) Select a representative sample from the listing of blendstock tenders which are included in the compliance calculations for the refinery or importer, and for such sample: (i) Agree the volumes to records supporting the transfer of the tender to another person;

(ii) Review the product transfer documents for the statement indicating the blendstock has been accounted-for, and may not be included in another party's compliance calculations; and (iii) Trace back to the batch or batches in which the blendstock was produced or imported. Obtain the refiner's or importer's internal laboratory analyses for each batch and compare such analyses for consistency with the analyses results reported to EPA; and (5) Select a representative sample from the listing of tenders of non-finished-gasoline petroleum products

that are excluded from the refiner's or importer's compliance calculations, and for such sample confirm that documents demonstrate the petroleum products were used for a purpose other than the production of gasoline within the United States.

Sec. 80.129 Agreed upon procedures for downstream oxygenate blenders.

The following are the procedures to be carried out at each oxygenate blending facility that is subject to the requirements of this subpart F:

(a) Read the blenders reports filed with the EPA for the previous year as required by Sec. 80.75.

(b) Obtain a material balance analysis summarizing receipts of RBOB and oxygenate to the blender, and the deliveries of reformulated gasoline from the blender.

(1) Test the mathematical accuracy of the calculations contained in the analysis.

(2) Agree the beginning and ending inventory to the blender's perpetual inventory records.

(3) Agree the analysis, where applicable, to the EPA reports. (c) Obtain a listing of all RBOB receipts for the previous year. (1) Test the mathematical accuracy of the volumetric calculations contained in the listing.

(2) Agree the volumetric calculations of RBOB receipts to the calculations contained in the material balance analysis. (3) Select a representative sample of RBOB receipts from the listing. Review the product transfer documents for the indication of the type and volume of oxygenate required to be added to the RBOB. (d) Obtain a listing of all reformulated gasoline batches produced by the blender during the previous year. (1) Test the mathematical accuracy of the volumetric calculations contained in the listing.

(2) Agree the volumetric calculations contained in the listing to the calculations contained in the material balance analysis. (3) Select a representative sample of the batches from the listing, and for these batches:

(i) Obtain the blender's records that indicate the volume and type of oxygenate that was blended, the volume of RBOB that was blended and the product transfer documents for the RBOB, and the internal lab analysis where applicable;

(ii) Agree the consistency of the type and volume of oxygenate added to the RBOB with that indicated to be added in the RBOB's product transfer documents;

(iii) Recalculate the actual oxygen content based on the volumes blended and agree to the report to EPA on oxygen; and (iv) Review the time and place designations in the product transfer documents prepared for the batch by the blender, for consistency with the time and place designations in the product transfer documents for the RBOB (e.g., VOC-controlled or non-VOC-controlled, VOC region for VOC-controlled, OPRG versus non-OPRG, and simple or complex model). (e) Agree the sampling and testing frequency of the blender's quality assurance program with the sampling and testing rates required in Sec. 80.72.

Sec. 80.130 Agreed upon procedures reports.

(a) Reports. (1) The CPA or CIA shall issue to the refiner, importer, or blender a report summarizing the procedures performed and the findings in accordance with the attest engagement or internal audit performed in compliance with this subpart. (2) The refiner, importer or blender shall provide a copy of the auditor's report to the EPA within the time specified in Sec. 80.75(m). (b) Record retention. The CPA or CIA shall retain all records pertaining to the performance of each agreed upon procedure and pertaining to the creation of the agreed upon procedures report for a period of five years from the date of creation and shall deliver such records to the Administrator upon request.

Secs. 80.131-80.135 [Reserved]

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